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FOREWORD

According to our current procedure in preparing an issue of DIS, the deadline for receipt of material is October 31--a time when, in this country at least, the college year is already under way and most research workers have settled down to their winter programs. Thanks to the fine cooperation of the *Drosophila* workers, almost all contributions arrive on time. The material is then classified into sections and checked for accuracy by Miss Agnes Fisher, who takes the greatest share of responsibility for editorial matters. All Bibliography listings are sent to Dr. I. H. Herskowitz, who took over the editing of this section in 1951. He transfers the titles to library cards for his cumulative file, after making certain that they are not already listed either in Muller's Bibliography or in his own Bibliography, now in press (see note on *Drosophila* bibliographies, page 137). Titles of publications that do not deal with *Drosophila* are omitted. The cards are then sent to us to be copied for DIS. The tedious work of typing stencils for the issue is done by Mrs. Ethel P. Burtch, the proofreading by Miss Catherine Carley and Mrs. Hilda H. Wheeler, and the mimeographing and assembling by Mr. Leslie E. Peckham, assisted by Miss Mary J. Holmes. Usually the issue is completed shortly before Christmas, but mailing is delayed until January in order to avoid the Christmas congestion.

Our present edition of 300 copies is just about the number we can conveniently handle. Each issue is distributed to all laboratories cooperating in its preparation, and to a very limited number of other genetics laboratories and libraries. Since copies are supplied without charge, and cannot be purchased, this assures the cooperation of all *Drosophila* laboratories interested in having DIS.

For some time there has been an evident demand for material that appeared in the earlier issues. To satisfy this need, Dr. E. Novitski has reproduced and made available the research and technical notes from numbers 1 through 14 (see page 137).

It has been noticed that mistakes tend to creep into stock lists, and sometimes to be perpetuated from year to year, presumably through errors in copying. These could be eliminated if the manuscripts of stock lists were checked, before being mailed, by someone familiar with the stocks and symbols.

Occasionally we receive descriptions of new mutants that have not yet been localized. As these are of doubtful permanent value, they are not included in DIS.

I should like to express appreciation to the collaborators in DIS both for their prompt response to the calls for material and for the good form in which contributions are usually submitted. This greatly expedites the work of preparing the issue.

M. DEMEREC

STOCK LISTS

Key to abbreviations:

- (1) number in parentheses after Df, In, etc., indicates the chromosome or chromosomes involved in rearrangement
 — indicates attached X's or attached X-Y
 X^c closed X
 Df deficiency
 Dp duplication
 In inversion
 T translocation
 Tp transposition
 / separates two homologous chromosomes
 ; separates two nonhomologous chromosomes, and X from Y
 , separates aberration from mutants carried with it
 & is used to indicate two components of the \$ requiring selection
 The letter l is underscored whenever necessary to distinguish it from the figure 1, as in lethal and when l indicates December.

COLD SPRING HARBOR: CARNEGIE INSTITUTION OF WASHINGTONWild Stocks

1 Amherst-34	6 Formosa, Japan	12 Swedish-b-6 (Swedish-b cleaned of inversions)
2 California-c (In(3R) P, ca/ <u>l</u> (3)c)	7 Kyoto, Japan	13 Tuscaloosa, Ala.
3 Canton-Special	8 Lausanne-Special	14 Urbana-Special
4 Crimea	9 Oregon-S	15 Woodbury, N. J.
5 Florida-19 (inbred)	10 Salta, Argentina	
	11 Seto, Japan	

Chromosome 1

17 amx/ <u>C1B</u>	38 ec dx	56 lh B car bb/ <u>y</u>
18 Ax	39 Ext/dl-49, y Hw m ² g ⁴	57 m
19 B	40 f	58 M(1)o f/In(1)AM
20 BB	41 f B/ <u>y</u>	59 na/sc ⁸ dl-49 y B w ^a lz ^s
21 bb ybb	42 f BiBi/ <u>y</u> f	60 ny/ <u>C1B</u>
22 Bg B/In(1)AM	43 fa	61 oc ptg ³ / <u>C1B</u>
23 bi ct ⁶ g ²	44 flp	62 od car
24 bo	45 fo	63 ov
25 br	46 fu g/ <u>y</u> v f car	64 peb v
26 Bx ³	47 g ² pl/ <u>C1B</u>	65 pn ²
27 car	48 g ² ty/ <u>y</u>	66 ptg ³ pn ²
28 car bb	49 g ² ty/Bbb	68 ras ²
29 cm	50 gg2/dl-49, y Hw w lz ^s	69 rb cx
30 co	51 gt w ^a	70 rg
31 ct v dy g f/In(1) A ^{99b} sn ^{3lf}	51a gt w ^a /gt bbl1	71 rst ² /dl-49, y Hw m ² g ⁴
32 ct ⁿ g ²	52 gt bbl1/ <u>C1B</u>	72 rux/dl-49, y Hw m ² g ⁴
33 dd ²	53 kz/ <u>C1B</u>	73 rux ²
34 dm/ <u>C1</u> , y Hw	53a kz	74 sbr/ <u>y</u>
35 dow/dl-49, y Hw m ² g ⁴	54 <u>l</u> (1)7 dl-49, y Hw ³ m ² g ⁴	75 sc cv v dwx/dl-49 y Hw m ² g ⁴
36 ec ct ⁶ v g ³ / <u>C1B</u>	55 <u>l</u> J1 scJ1/ <u>l</u> J1 scJ1 dl-24 (Muller)	76 sc cv v f
37 ec ct ⁶ s car/ <u>C1B</u>		77 sc ec cv ct ⁶ v g f/ <u>C1B</u>

78 sc ² pn/+	93 w	108 w ¹ vb
78a sc t ² v f tu car ♂	94 w fa	109 w ^{sat}
& y f ♀ ("scart")	95 w m f	110 w ^t fw
79 sc ¹⁰ w ^a	95a w m f/C1B	111 w; We/CPL CPR
80 scp t	96 w ct ⁶	112 y
81 sd mc	97 w ec	113 y ac v
82 svr w ^a	98 w spl	114 y ec v wy ²
83 sw	99 w ^a	115 y f
84 sy	100 w ^{bf} f ⁵	116 y fa ⁿ
85 sx vb ² sy/In(1)AM	101 w ^{bf} lz/C1B	117 y pn
86 t ² v f	102 w ^{bl}	118 y sc
87 tbd	103 w ^{ch} wy	119 y sc w
88 tw/C1, y Hw	104 w ^{co}	120 y w
89 un ⁴	105 w ^e	121 y ² dvr ² y f car/C1B
90 v	106 w ^e sn/C1B	122 y ² wy ² g ²
92 vs	107 w ^{e2}	

Chromosome 2

123 ab ² /T(Y;2)E	153 ds S G b pr/Cy, L	188 pu
124 abr/Cy, hk ²	154 ed Su ² -dx	189 pys
125 al b c sp ²	155 el	190 rdo ²
126 al b pr cn vg a sp ² /	156 ex	191 rh
Cy, L ⁴ sp ² (albasp)	157 fes lt/Cy, al ² lt ³	192 rl
127 al sp b/Ins(2L+2R)	L ⁴ sp ²	194 S Sp ab ² ltd/NS,
Cy, S ² E-S	158 fj px sp	px sp
128 al dp b pr c px sp/	159 fr sp/Cy, pr	195 sca
Cy pr (all)	160 fr ² wt/Cy	196 shr bw ^{2b} abb sp/
129 al S ho/Cy	161 G ^{rv} /Cy, dp ²	Cy, sp ²
130 ap ⁴ /Cy	162 hk	197 Sk b/In(2L)NS
130a ap ⁴ /Rvd	163 ho	198 sm px pd/Cy, al ²
131 b arch 1(2)C/Cy,	164 hy a px sp/T(2;3)	L ⁴ sp ²
L ⁴ sp ²	SM, Cy	199 stw ³
132 b el	165 J/In(2L)+, 1(2)B	200 Su-H whd 1(2)Su-H/
133 b gp a/Cy-RNS	166 J ^{34e}	Cy, al ² lt ³ L ⁴ sp ²
134 b j	168 kn	202 tkd/Cy, al ² L ⁴ sp ²
135 b rd ^s pr cn	169 L ²	203 tkv
136 bat/Ins(2L+2R)Cy, S ²	170 L ⁵	204 trm-Cy
137 Bl/esc	171 lg1 cn bw/Cy cn bw	205 vg
138 blo	172 1(2)H L ² /Cy, dp ² ; (w)	
139 blt	173 ll ²	
140 bw	174 lm/Cy, S ² dp ² E-S	
141 c wt px	175 lt std/Cy, sp ²	
142 cg c/U	176 ltd	
143 ch	177 M(2)173/Cy al ² lt ³	
144 cl	L ⁴ sp ²	
145 cn	178 M(2)1 ² /Cy, L ⁴ sp ²	
146 d b/Cy, pr	179 M(2)z/In(2L)t, 1(2)R	
147 dp	180 mi sp/Pm ²	
148 dp ^T In(2L+2R)Cy S ² E-S	181 mr bs ² /Cy, sp ²	
149 dp b cn c a mr/Cy	182 net ed Su ² -dx	
150 dp b pr c px sp	183 nw ² /Cy	
150a b (pr) c px sp ²	184 Pfd+Ins(2L+2R)Cy, S ²	
151 dp pr px/Cy, pr	185 pi/Cy pr	
152 ds ft dp ^{V2} 1(2)M b pr/	186 Pin	
Cy, dp ²	187 pr en	

Chromosome 3

206 aa h	233 Ly/D ³	256 se
207 app	234 Ly Sb/LVM	257 se e ^{ll}
208 bul	235 M(3)/In(3R)C, e <u>1</u> (3)e	258 se rt ² th/Mé
209 bx ^{34e} /Payne, Dfd ca	237 M(3)w/In(3R)C, e <u>1</u> (3)e	259 se ss k e ^s ro
210 c3G	238 ma fl	260 se ss ro
211 cd	239 mah	261 Ser/In(3R)c, e <u>1</u> (3)a
212 cmp ca/In(3R)c, e	240 obt	262 snb
213 cp	241 pb/Cx, D	263 sr sed
214 cp p ^p	242 p ^p by Sb ^{Sp1} /In(3R)C,	264 ss bx
215 cu kar	243 Pr/In(3R)C, e	265 ss bxd k e ^s /X ^a
216 cur	244 Pt/Xa, ca	266 ss ^a
217 cv-c	245 pyd	267 st
218 In(3R)Cyd	246 Pc/Mé	268 st E-Mg e ^s M g/ T(2;3)Mé
219 D ³ H/Payne	246a R/Mé	269 st sr e ^s ro ca; tu ^{30a}
220 Dfd/Cx, D	247 ra	270 su-ve ru ve h th
221 D1 ³ /In(3R)C, e	248 ri p ^p	271 th cu sr e ^s ro ca (theca)
222 dv/Mé	249 rp/Payne, Dfd ca	273 th st pb p ^p /Cx, D
223 e ⁴ wo ro	250 rs ²	274 th st W p ^p
224 e ^{ll}	251 ru h th st cu sr e ^s ca(ru-cu-ca)	275 tt wo
225 e ^s cd ro cmp ca/ Xa, ca	252 ru h th st cu sr e ^s Pr ca/T(2;3)Mé	276 tx
226 eg ² /Dfd	253 ru h th st p ^p cu sr e ^s (res)	277 ve
227 gl ³	254 ru ^g jv se by Mé	278 W
228 Gl/Payne	255 ry	
229 Gl Sb/LVM		
230 in p ^p		
231 jv Hn ^r h		
232 jv se		

Chromosome 4

279 ar/ey ^D	283 ci ^D /ey ^D	287 Scn/ey ^D
280 bt	284 ey ²	288 spa
281 bt ^D /ci ^D	285 gvl ey ^R	289 sv ⁿ
282 ci ey ^R	286 Mal; pr	290 Cat/ci ^D

Multichromosomal

291 Cy/Pm, ds ^{33k} , H/C, Sb	293 su-b; b pr c
291a Cy al ² lt ³ L ⁴ sp ² /Pm; Cx, D/In(3R)Mo, Sb	294 v; st
292 sn ³ ; M(3)w/Payne	295 y; bw; e; ci ey ^R
	297 <u>y</u> ; bw; e; ci ey ^R

Closed-X298 X^c, y/f BDeficiencies

299 Df(1)N ⁸ /dl-49 y Hw m ² g ⁴	304 Df(2)vg ^D /U
300 Df(2)bw ⁵ sp/Cy, dp	305 Df(2)vg ^S /Cy, al ² lt ³ L ⁴ sp ²
303 Df(2)Px ² /Cy, L ⁴ sp ²	

Duplication307 Dp(1;f)135^{y2}; In(1)sc⁸, Df(0-sc)w^a sc⁸

Inversions

- | | |
|---|---|
| 308 In(1)AB/y v f | 314 In(1)sc ⁸ , w ^a |
| 309 In(1)A ^{99b} | 315 In(1)w ^{m4} |
| 310 In(1)dl-49, v ^{Of} | 315a sc ^{S1} B InS w ^a sc ⁸ (Muller-5) |
| 311 In(1)dl-49, y fa ⁿ | 316 In(2IR)Gla/Cy pr |
| 312 In(1)rst ³ , rst ³ car bb | 317 In(3L)pers |
| 313 In(1) sc ⁴ , y sc ⁴ | |

Translocations

- | | |
|--|--|
| 318 XY', g ² By"/y/Y" (Stern) | 323 T(Y;2)J ltd/ab ² |
| 319 T(1;2)7/C1B | 324 T(2;3)P/Cy |
| 321 T(1;2)Bld/C1B | 325 T(2;3)S ^M Cy/vg ^{nw} |
| 321a T(1;3)w ^{Vco} /y w bb?/Cx; D | 326 T(2;4)d/Cy, pr |
| 322 T(1;4)w ^{m5} (het ♂; hom ♀) | |

Unanalyzed

- 328 Virus? Co₂-sensitive e (L'Héritier)

Special Stocks

- | | |
|---|---|
| 329 Df(1)260-1(0-sc) | Df260-1 s/dl-49, y Hw m ² g ⁴ |
| 330 Df(1)260-2(0-ac) | Df260-2/Dp118 |
| 332 Df(1)260-10 (Df bands 1-2), y (hom) | |
| 333 sc260-14 (In) (hom) | |
| 334 sc260-15 (Tl;3) | |
| 335 sc260-17 (Tl;2L) (hom) | |
| 336 Df(1)260-19 (Df bands 1-2), g (hom) | |
| 337 sc260-20a (Tl;4) (hom) | |
| 338 260-20f | Dp(y ⁺)y sc |
| 339 sc260-22 (In) (hom) | |
| 341 260-25b | Dp y sc |
| 343 260-27 | Dp(1)y sc/y sc Dp |
| 346 sc260-29 (complex Tl;2L;3L) | sc/y sc w |
| 347 260-31 | y ac 260-31 (Tl;2L) y ac/y dl-49 |
| 348 w258-11 (Df w) | y w258-11/dl-49, y Hw m ² |
| 349 w258-14 (Df w) | y w258-14/dl-49, y Hw m ² g ⁴ |
| 351 w258-21 (mottled w, fa dm; Tl;4) | y w258-21/dl-49, y Hw m ² g ⁴ |
| 354 w258-36 (mottled w; Tl;2R) | y w258-36/w & w |
| 358 w258-42 (Df w) | y w258-42/dl-49, y Hw m ² g ⁴ |
| 359 w258-43 (Tl;4) | y w258-43/dl-49, y Hw m ² g ⁴ |
| 361 w258-45 (Df w) | y w258-45/dl-49, y Hw m ² g ⁴ |
| 362 w258-46 (Df) | y w258-46/w |
| 363 w258-48 (Df w) | w258-48/dl-49, y Hw m ² g ⁴ |
| 364 w258-52 (In) | w rst/dl-49, y Hw m ² g ⁴ |
| 368 N25/dl-49, lz ³ | |
| 370 y N38/dl-49 | |
| 371 N264-2a | y N264-2/dl-49, y Hw m ² g ⁴ |
| 373 N264-7a (In) | N264-7 sn ³ /dl-49, y Hw m ² g ⁴ |
| 374 N264-7b (In) | N264-7 sn ³ /y Hw |
| 375 N264-8 | N264-8/dl-49, y Hw m ² g ⁴ |
| 379 N264-23 (mottled rst, fa; Tl;3L) | y N264-23/dl-49, y Hw m ² g ⁴ |
| 380 N264-29 (mottled rst, fa dm; Tl;3L) | y N264-29/dl-49, y Hw m ² g ⁴ |
| 383 N264-32a | y N264-32/dl-49, y Hw m ² g ⁴ |
| 386 N264-34a (Tl;3L) | y N264-34/dl-49, y Hw m ² g ⁴ |
| 388 N264-39 | wch N264-39/dl-49, y Hw m ² g ⁴ |
| 389 N264-40 | N264-40/dl-49, y Hw m ² g ⁴ |

390	N264-41	w N264-41/dl-49, y Hw m ² g ⁴	
391	N264-47	y N264-47/dl-49, y Hw m ² g ⁴	
392	N264-48 (In)	y N264-48/dl-49, y Hw m ² g ⁴	
394	N264-50 (Tp 1 into 2L)	y N264-50/dl-49, y Hw m ² g ⁴	
396	N264-53 (Tl;2L)	y N264-53/dl-49, y Hw m ² g ⁴	
397	N264-54	y N264-54/dl-49, y Hw m ² g ⁴	
399	N264-57 (In)	y N264-57/dl-49, y Hw m ² g ⁴	
400	N264-58b	y N264-58/dl-49, y Hw m ² g ⁴	
401	264-58a-10	w spl, Dp	
402	N264-59 (mottled w rst, fa; Tl;2L)	y N264-59/w	
403	N264-63 (Tp)	y N264-63/dl-49, y Hw m ² g ⁴	
404	N264-64 (mottled w; Tl;3L)	y N264-64/w	
406	N264-66 (mottled w; Tpl;2R)	y N264-66/w	
407	N264-70 (mottled w rst, fa dm; complex Tl;3L;3R)	y N264-70/ dl-49, y Hw m ² g ⁴	
410	N264-72 (Df)	y N264-72/dl-49, y Hw m ² g ⁴	
415	N264-83 (Complex T, In 1-3L)	y N264-83/dl-49, y Hw m ² g ⁴	
416	N264-84 (mottled fa, dm; In)	y N264-84/dl-49, y Hw m ² g ⁴	
418	N264-87a (Complex Tl;3R;2R)	N264-87/dl-49, y Hw m ² g ⁴	
420	N264-88 (Df)	N264-88/dl-49, y Hw m ² g ⁴	
426	N264-100 (Tl;3L mottled w, spl, dm, ct)	w sp N/y Hw w	
428	N264-102 (Tl;2R)	y N/dl-49, Hw m ² g ⁴	
429	N264-103	y N/dl-49, Hw m ² g ⁴	
431	N264-105 (Df N, dm)	N/dl-49, Hw m ² g ⁴	
432	N264-107	y sc w N/dl-49, Hw m ² g ⁴	
433	N264-108 (In with Df rst, spl, dm)	N/dl-49, Hw m ² g ⁴	
434	N264-109	N/dl-49, Hw m ² g ⁴	
435	N264-110 (Df w, rst, spl, dm)	N/dl-49, Hw m ² g ⁴	
436	N264-111 (Df N)	y N/dl-49, Hw m ² g ⁴	
437	N264-112 (In)	y N/dl-49, Hw m ² g ⁴	
438	N264-114 (Df rst, spl, dm)	N/dl-49, Hw m ² g ⁴	
440	N264-116 (In)	N/dl-49, Hw m ² g ⁴	
441	N264-117 (Df w, rst, spl, dm)	N/dl-49, Hw m ² g ⁴	
442	N264-118 (Df spl)	N/dl-49, Hw m ² g ⁴	
443	N264-119	N/dl-49, Hw m ² g ⁴	
444	N264-120 (Df spl, dm)	y N/dl-49, Hw m ² g ⁴	
446	N264-123	N/dl-49, Hw m ² g ⁴	
447	N264-126 (Df, fa, dm)	N/dl-49, Hw m ² g ⁴	
448	N264-128	N264-128/dl-49, Hw m ² g ⁴	
449	N264-129	N/dl-49, Hw m ² g ⁴	
450	N264-130 (Df fa)	N/dl-49, Hw m ² g ⁴	
451	N264-132	y N/dl-49, Hw m ² g ⁴	
452	N264-133 (Complex Tl;2L;3R)	N/dl-49, Hw m ² g ⁴	
453	N264-135 (N/dl-49), y Hw m ² g ⁴ (Neel)		
454	N264-136	y N264-136/dl-49, y Hw m ² g ⁴	
455	ct268-1a	y ct268-1/dl-49, y Hw m ² g ⁴	
456	ct268-2a	y ct268-a/dl-49, y Hw m ² g ⁴	
457	ct268-2b	ct268-2/dl-49, y Hw m ² g ⁴	
458	ct268-3a	y ct268-3/dl-49, y Hw m ² g ⁴	
459	ct268-5a (Tl;3R)	ct268-5 B/dl-49, y Hw m ² g ⁴	
460	ct268-5b	y ct ⁻ B/dl-49, Hw m ² g ⁴	
461	ct268-6a	ct268-6 sn ³ /dl-49, y Hw m ² g ⁴	
462	ct268-17b (Tl;2R)	y Hw ct268-17/sn ³	
463	ct268-20 (In)	y ct268-20/dl-49, y Hw m ² g ⁴	
464	ct268-21 (Tl;3R)	y ct268-21 B/dl-49, y Hw m ² g ⁴	
465	ct268-23	y ct268-23 B/dl-49, y Hw m ² g ⁴	
466	ct268-24 (Tl;2R)	y ct268-24/dl-49, y Hw m ² g ⁴	

467	st268-26 (Tl;2L)	y ct268-26/dl-49, y Hw m ² g ⁴
468	ct268-27 (In)	y ct268-27/dl-49, y Hw m ² g ⁴
469	ct268-29 (Tl;3R)	y ct268-29/dl-49, y Hw m ² g ⁴
470	ct268-29b	y ct ⁻ v f/dl-49, y Hw m ² g ⁴
471	ct268-30	y ct268-30/dl-49, y Hw m ² g ⁴
473	ct268-32 (Tl;2R & Tp)	y ct268-32/dl-49, y Hw m ² g ⁴
474	ct268-33 (Tl;2R)	y ct268-33/dl-49, y Hw m ² g ⁴
475	ct268-35 (?)	y ct268-33/dl-49, y Hw m ² g ⁴
476	ct268-36 (Tl;3L)	y ct268-36/dl-49, y Hw m ² g ⁴
477	ct268-37 (Tl;3L)	ct ⁻ /dl-49, Hw m ² g ⁴
479	ct268-40 (complex Tl;2L;3L;3R)	y ct ⁻ /dl-49, Hw m ² g ⁴
481	ct268-42 (Df)	y ct ⁻ /dl-49, Hw m ² g ⁴
483	Df267-6	y v 267-6/dl-49, y Hw
484	Df259-4a (m)	Df259-4/dl-49, y Hw m ² g ⁴
485	Df259-4e (m)	y Df259-4/dl-49, y Hw m ² g ⁴
486	Df286-9 (dy)	y Df286-9 B/dl-49, y Hw m ² g ⁴
487	Df274-2a (Df wy Tl;2)	sn Df274-2/dl-49, y Hw m ² g ⁴
488	g271-2b (g-ty)	y g271-2/dl-49, y Hw m ² g ⁴
489	g271-3b (g-ty) (From Mrs. Morgan)	y g271-3/dl-49, y Hw m ² g ⁴
490	g271-6a (g ty)	y g271-6/dl-49, y Hw m ² g ⁴
491	g271-9 (g)	y g271-9/dl-49, y Hw m ² g ⁴
492	g271-10 (g)	y g271-10/dl-49, y Hw m ² g ⁴
493	f257-4	++/y f
494	f257-5b (Tl;2)	y f257-5/f B
495	f257-6a (From Pasadena)	f257-6/f B
497	f257-19	f257-19 B/In AM
499	f257-24	f257-24 B/In AM
504	Df B263-24a (In?)	y Df B263-24/y f B
506	Df B263-34e	y B263-34/y f B
508	Df B263-43	y B263-43 (hom)
509	Df B263-46	y/B263-46
511	272-13 (complex Tp)	y/dl-49, Hw m ² g ⁴
512	278-2a	y Bx ⁻ /y f B
513	278-6	y B Bx ⁻ /y
514	t282-1b	y t ⁻ /dl-49, Hw m ² g ⁴
515	v267-4 (Tl;2L)	y v B/dl-49, Hw m ² g ⁴
516	285-2 (In)	ec/dl-49, Hw m ² g ⁴
517	285-3	ec/dl-49, Hw m ² g ⁴
519	287-6a	y/f B ¹
520	pn323-1 (hom)	
521	pn323-2 (hom)	
523	pn323-7 (Dp)	Dp +/y pn
524	pn323-8 (In)	pn/dl-49, Hw m ² g ⁴
525	337-2	rb sp/rb cx
526	251-33	N/dl-49, Hw m ² g ⁴

PASADENA, CALIFORNIA: CALIFORNIA INSTITUTE OF TECHNOLOGYWild Stocks

1 Canton-S
2 Lausanne-S
3 Oregon-R-C (Df(2)Ore)

4 Swedish-c (Df(2)Sw^L, Df(2)Sw^R)
5 Urbana-S

Chromosome 1 (X)

6 amx/C1B	48 gg ² /dl-49, lz ^s	95 sn ^{36a} /y f:=
7 Ax	49 gt bb ¹¹ /C1B	96 spl
8 B	50 gt w ^a /y f:=	97 sta/C1B
9 B ^{36j}	51 gt w ^a	98 Su ^x -dx dx
10 Bg B/In(1)AM	52 Hw ^{49c} /Muller-5	99 su ² -s v
11 bi ct ⁶ g ²	53 if ³	100 su ² -s w ^a cv t f
12 bo	54 kz	101 su ³ -s eq/y f:=
13 br	55 l(1)7/dl-49,	102 su ^{S2} -v-pr v/y f:=
14 br w ^e ec rb t ⁴ /	y Hw m ² g ⁴	103 svr
Ins(1)sc ⁸ , dl-49,	56 lz/C1B	104 svr w ^a
y ^{3ld} w ^a lz ^s B	57 lz ⁵ /y f:=	105 sw
15 Bx	58 lz ^{34k} /y f:=	106 sx vb ² sy/In(1)AM
16 Bx ²	59 lz ^{37h}	107 sy
17 Bx ³	60 m	108 t
18 Bx ^J	61 ma-1/y f:=	109 t ² v f
19 Bx ^r	62 M(1)o f/In(1)AM	110 t ³
20 car	63 M(1)Sp/In(1)AM	111 tw/y Hw
21 cm	64 na/sc ⁸ , dl-49,	112 un Bx ² /In(1)AM, ptg ⁴
22 cm ct ⁶	y ^{3ld} w ^a lz ^s B	113 un ⁴
23 ct ⁿ oc/Ins(1)sc ⁸ ,	65 ny f/y f:=	114 v
dl-49, y ^{3ld} w ^a lz ^s B	66 od	115 v Bx ^r car
24 cx	67 pn ²	116 v f su ^w -f
25 cx ^{tg} t/Ins(1)sc ⁸ ,	68 ptg ²	117 v M(1)n/In(1)AM
dl-49, y ^{3ld} w ^a lz ^s B	69 r ⁹ /y f:=	118 v r ¹²
26 dm/C1, y Hw	70 r ^{39k} f B/In(1)AM	119 v ² fw
27 dow/dl-49, m ² g ⁴	71 ras dy	120 v ^{36f}
28 dy	72 ras ²	121 vb
29 ec	73 ras ³ m	122 vs
30 ec ct ⁶ s car/Ins(1)sc ⁸ ,	74 rb	123 w
dl-49, y ^{3ld} w ^a lz ^s B	75 rb cx	124 w m f
31 ec dx	76 rg	125 w ^a
32 ec dx/dl-49, Su-Hw y	77 rst ² /dl-49, m ² g ⁴	126 w ^{a2}
Hw m ² g ⁴	78 s	127 w ^{a3}
33 Ext/Ins(1)sc ⁸ , dl-49,	79 sc	128 w ^{a4}
y ^{3ld} w ^a lz ^s B	80 sc cv v f	129 w ^{bf} f ⁵
34 f	81 sc ec cv ct ⁶ v g f/C1B	130 w ^{bf2}
35 f B	82 sc ² pn/y f:=	131 w ^{co} sn ²
36 f BB/In(1)AM	83 sc ^{3B}	132 w ^{col}
37 f BB ^{36b} /In(1)AM	84 sc ³⁻¹ w	133 w ^e
38 f B ³ /In(1)AM	85 sc ⁵ bb ^{sc5}	134 w ^{e2}
39 f BiBi/y f:=	86 sc ⁶ w ^a	135 w ^h
40 f fu/y f:=	87 sc ¹⁰ w ^a	136 wi f ³ bb ^M
41 f ^{36a}	88 sc ¹⁰⁻¹ /y Hw	137 w ^{sat}
42 fa	89 scp t	138 w ^t fw
43 flp	90 Sh ² /Muller-5	139 wy
44 fo	91 shf ²	140 y
45 G ²	92 sn ³	141 y ac v
46 G ² pl/C1B	93 sn ⁴	142 y pn
47 G ² ty/y f:=	94 sn ^{34e}	

143 y ac	148 y w spl	153 y ^{2s}
144 y sc lz ⁶ v f/y f:=	149 y ²	154 y ^{2s} fw ^{34e}
145 y sc ⁵	150 y ² cv v f	155 y ^{3d} /y f:=
146 y sc ^{D1}	151 y ² dvr ² v	156 y ^{34c}
147 y sc ^{D2}	152 y ² w ^a	157 y ^{td}
		158 y ^{v2}

Chromosome 2

159 a px sp	205 ch	244 fj <u>1</u> (2)Su-H/Xa
160 ab	206 chl	245 fj wt/Xa
161 ab ² /T(Y;2)E	207 chl en/Cy, al ²	246 fr/Cy, dp ²
162 abr/Cy, hk ²	L ⁴ sp ²	247 fr ² wt/Cy
163 ad	208 chl <u>1</u> (2)bw bw ^{2b} mr ² /	248 ft
164 al	Cy, al ² L ⁴ sp ²	249 G ^{rv} /Cy, dp ²
165 al b c sp ²	209 chy	250 hk
166 al dp b bw <u>1</u> (2)ax/Cy,	210 ck/Cy	251 hk pr
sp ²	211 cl	252 ho
167 al dp b pr blt bw/	212 cl ² px sp/T(T;2)E	253 hv/Cy, al ² lt ³ L ⁴
Cy, al ² lt ³ L ⁴ sp ²	213 cn	sp ²
168 al dp b pr c px sp	214 cn bw	254 hy/Cy L ⁴ sp ²
169 al S ast ho/Cy, E-S	215 cn en/Cy, al ² lt ³	255 hy a px sp/
170 Alu	L ⁴ sp ²	T(2;3)S ^M , Cy
171 an/Cy	216 cn ³ /T(Y;2)C	256 j
172 an ² /Cy, bw ^{v34}	217 cn ^{35k}	257 J B1/In(2L)NS
173 ap ⁴ /Rvd	218 cru/Cy; (w ^e)	258 J ^{34e}
174 arch chl/Cy, al ² lt ³	219 d/Cy(2L), dp ² b pr	259 kn
L ⁴ sp ²	220 d b/Cy, pr	260 L
175 ast ho	221 dil ² hv bw sp/Cy,	261 L ²
176 ast ⁴ dp cl	al ² lt ³ L ⁴ sp ²	262 L ⁴
177 b	222 dke c	263 L ⁵
178 b el rd ^s pr cn	223 dp	264 L ^r
179 b Go/Cy, pr	224 dp ^{Nov}	265 L ^{si}
180 b gp	225 dp ^o	266 <u>1</u> (2)39a px slt sp/
181 b j	226 dp ^{o2}	Cy, al ² lt ³ L ⁴ sp ²
182 b <u>1</u> (2)Bld pr c px sp/	227 dp ^{Rf} /Pm, ds ^{33k}	267 <u>1</u> (2)36e/Cy; (hom. 3)
Cy, al ² lt ³ L ⁴ sp ²	228 dp ^t /Ins(2L;2R)Cy	268 <u>1</u> (2) a bs ³ , In(2L)t/
183 b lt bw/T(Y;2)G	S ² E-S	Pm ds ^{33k}
184 b pr tk/T(Y;2)G	229 dp ^{tx} b/Cy	269 <u>1</u> (2) ay b c sp/Cy,
185 b sf	230 dp ^{v2}	al ² lt ³ L ⁴ sp ²
186 b vg	231 dp ^{v1} /Cy, al ² L ⁴ sp ²	270 <u>1</u> (2)H L ² /T(2;3)Xa
187 bat/Ins(2L+2R)Cy, S ²	232 ds dp	271 <u>1</u> (2)mat/Cy
188 B1/In(2LR)dp	233 ds ft dp ^{v2} <u>1</u> (2)M b	272 ll ²
189 B1 L ² /Cy, sp ²	pr/Cy dp ²	273 lm/Cy, S ² dp ² E-S
190 B1 stw ³ /In(2LR)dp	234 ds S G b pr/Cy, al ²	274 lt/T(Y;2)A
191 B1 stw ⁴³ blt tuf/Cy, sp	lt ³ L ⁴ sp ²	275 lt std/Cy, sp ²
192 Bla/Cy	235 ds ^w /In(2L)Cyt, Su-S	276 lt stw ³
193 blo	dp ² pr	277 ltd
194 blt	236 ds ^{38k} /Cy(2L), dp ²	278 lw
195 bri	b pr	279 M(2)173/Cy, al ²
196 bs ²	237 dw-24F cl/Cy, dp ²	lt ³ L ⁴ sp ²
197 bw	238 dw-24F <u>1</u> (2)cg cg/Cy,	280 M(2)B/In(2L)t,
198 bw ba	al ² lt ³ L ⁴ sp ²	<u>1</u> (2)B
199 bw tu	239 ed Su ² -dx	281 M(2)1 ² /Cy, L ⁴ sp ²
200 bw ^{2b}	240 el	282 M(2)p/Cy, al ² lt ³
201 bw ^D	241 esc/B1	L ⁴ sp ²
202 c	242 ex	283 M(2)S1/Cy, pr
203 c wt px	243 fes Alu lt/Cy,	284 M(2)S5/Cy, L ⁴ sp ²
204 cg c/U	al ² lt ³ L ⁴ sp ²	285 M(2)S6/Cy, pr

286 M(2)S7/Cy, al ² lt ³ L ⁴ sp ²	314 puff	342 Sp J L ² Pin/Cy, sp ²
287 M(2)S9/Cy, dp ²	315 pw-c/Cy	343 spd gt-4/Gla
288 M(2)S11/Cy, bw ^{V34}	316 px	344 std/Cy, al ² lt ³ L ⁴ sp ²
289 M(2)S13/Cy bw ^{V34}	317 px bw sp/T(Y;2)J	345 stw/T(Y;2;3)I
290 M(2)z/In(2L)t, 1(2) R	318 px bw mr sp/Pm, ds ^{33k}	346 stw ²
291 M(2)z Sk b/Cy(2L) dp ² b pr	319 pys	347 stw ³ /T(Y;2)B
292 mi/Pm ²	320 Q	348 stw ⁵
293 mr bs ² /Pm, ds ^{33k}	321 rd/Cy, L ⁴ sp ²	349 stw ⁴⁸ blt tuf
294 mr ² /Bld, In(2R)Cy	322 rdo	350 Su-H whd 1(2)Su-H/Cy, al ² lt ³ L ⁴ sp ²
295 msf/Cy, sp ²	323 rdo ² pr	351 Su-H/Cy, pr
296 net	324 Rf/Pm, ds ^{33k}	352 tkd/Cy, al ² L ⁴ sp ²
297 net ed Su ² -dx	325 rh	353 tkv
298 nw ² /Cy-RNS	326 rl	354 tri vg ^{No2} /Cy
299 pd	327 rub	355 tuf ltd
300 pd ll	328 S/Cy, E-S	356 Uf
301 pd ll ² sp	329 S Sp ab ² ltd/NS, px sp	357 vg
302 Pfd/Ins(2L+2R)Cy, S ²	330 S Sp B1 N-2/Cy, L ⁴ sp ²	358 vg ⁿⁱ
303 pi/Gla	331 SR/Pm, ds ^{33k}	359 vg ^{np}
304 pi 1(2)301/Cy, al ² lt ³ L ⁴ sp ²	332 sca	360 vg ^{nw} Hia/T(2;3)S ^{II} Cy
305 pk cn	333 sca 1(2)C/Cy, sp ²	361 vst/Cy
306 pk tuf (sp ² /+)	334 sf ²	362 whd
307 po vg	335 shr bw ^{2b} abb sp/ Cy, sp ²	363 wt
308 po ²	336 shv	
309 pr	337 sm px/Cy	
310 pr cn/T(Y;2)C	338 sm px pd/Cy, al ² L ⁴ sp ²	
311 pr cn ix/Cy, al ² lt ³ L ⁴ sp ²	339 sp ² bs ²	
312 pr ^{bw}	340 Sp/In(2L)t, 1(2)R	
313 pu	341 Sp J/In(2L)Cyt, Su-S dp ² pr	

Chromosome 5

364 a-3	383 cmp ca/In(3R)C, e	402 D1 ¹¹ /Payne, Dfd ca
365 a-4	384 cp	403 D1 ¹² /Payne, Dfd ca
366 a-5 bu-36e	385 cp in ri p ^D	404 D1 ¹³ /In(3R)C, Sb e 1(3)e
367 abd	386 cu	405 D1 ¹⁴ /In(3R)Cyd, Cyd
368 abd	387 cu kar	406 D1 ^X /Payne
369 a-3 ⁴	388 cur	407 dwh/Payne, Dfd ca
370 a-3 ⁴ e ^S	389 cv-c	408 e ⁴ wo ro
371 bar-3 (Ives)	390 cv-c sbd ²	409 e ¹¹
372 Pd ^G /In(3R)C, 1(5)a	391 cv-d	410 e ^S
373 bf/In(3R)C, Sb e 1(5)e	392 D/G1	411 e ^S ca nd /In(3R)C, Sb e 1(5)e
374 bul	393 D ⁵ Sb ca ² /Payne	412 e ^S cd ro cmp ca/Xa, ca
375 bv	394 det	413 eg/Cx, D
376 bx ³ /In(3R)C, 1(3)a (su ² -Hw present)	395 Dfd/Cx	414 eg ² /Cx, D
377 bx ^{34e}	396 Dfd ^r	415 eyg
378 bx ^D e ⁴ /Payne, Dfd Ca	397 D1 H e ^S cd/ In(3R)spr, spr	416 fz
379 ca	398 D1 ³ /In(3R)C, e	417 gl
380 ca bv	399 D1 ⁵ /In(3R)C, 1(3)a	418 gl ² e ⁴
381 ca ²	400 D1 ⁷ /In(3R)Mo, Sb sr	419 gl ³
382 cd	401 D1 ⁹ /In(3R)C, e	420 G1 Sb/LVM
		421 h

432 h cu H ² ca/Payne, Dfd ca (<u>1</u> (3)D1)	453 ma	489 se app
423 h ²	454 ma fl	490 se h
424 H/In(3R)hp, hp	455 mah	491 se rt ² th/Mé
425 H Pr/In(3R)C, e	456 Mc/Xa	492 se ss k e ^s ro
426 H ² /Xa	457 obt	493 sed
427 H ³ /In(3R)C, Sb e 1(3)e	458 p	494 Ser/In(3R)C, e <u>1</u> (3)e
428 Hn ^r	459 pP	495 snb
429 in	460 pP bx sr e ^s	496 sr
430 jv	461 pP cu	497 sr gl
431 jv Hn ^r h	462 pb/Cx, D	498 sr sed
432 jvl	463 Pc/Mé	499 ss
433 kar ²	464 Pr/In(3R)C, <u>e</u>	500 ss bx Su ² -ss
434 <u>1</u> (3)36d10/Cx D	465 Pt/Xa, ca	501 ss bxd k e ^s /Xa
435 <u>1</u> (3) ac e ^s M(3)w/LVM	466 pyd	502 ss ^a
436 ld	467 R Ly/In(3L)P, gm	503 ss ^a -B
437 Ly/D ³	468 ra	504 st
438 Ly Sb/LVM	469 ri	505 st c3G ca/In(3)TM, Mé ri(sp ²)
439 M(3)/In(3R)C, e <u>1</u> (3)e	470 ri bod e ^e /Mé, In(3R)C, Sb e <u>1</u> (3)e	506 st ri in pP
440 M(3)124/In(3R)C, e <u>1</u> (3)e	471 ri pP/st, T(Y;2;3)F	507 st Sb ^r e ^s ro ca
441 M(3)36e/In(3R)C, <u>1</u> (3)a	472 ro	508 st sr e ^s ro ca; tu 36-a
442 M(3)39b/In(3R)Cyd, Cyd	473 ro Bd ca/In(3R)C, <u>1</u> (3)a	509 st sr H ² ca/In(3R)P ^W , st <u>1</u> (3)W ca
443 M(3)40130/Payne, Dfd ca	474 ro ca ra/T(2;3)Mé	510 stsp ⁻
444 M(3)B/In(3R)C, e <u>1</u> (3)e	475 rs ²	511 su ² -Hw bx bxd/In-TM(sp ²)
445 M(3)B ² /In(3R)C, Sb e <u>1</u> (3)e	476 rsd	512 su-t;t
446 M(3)H/In(3R)Mo, Sb sr	477 ru	513 su-ve ru ve h th
447 M(3)332/T(2;3)Mé	478 ru h th st pP H e ^s ro/C(3)C, M(3)X e ^x	514 th
448 M(3)334/T(2;3)Mé	479 ru h th st cu sr e ^s ca (ru-reverted?)	515 th st cp
449 M(3)336/T(2;3)Mé	480 ru h th st cu sr e ^s Pr ca/T(2;3)Mé	516 th st pb pP/Cx, D
450 M(3)337/In(3L)Mé	481 ru h th st pP cu sr e ^s	517 tra/Cx, D (<u>y</u> <u>v</u> /w ^a)
451 M(3)w/In(3R)C, e <u>1</u> (3)e	482 ru ^g jv se by	518 tt wo
452 M(3)y/Mé	483 ry	519 tu-h
	484 Sb/In(3LR)bxd ^{D101}	520 tx
	485 Sb bx ^D /Xa	521 ve
	486 Sb H/In(3R)C, cd	522 ve h th
	487 SbSp ⁱ /Cx D	523 ve R/In(3L)P, gm
	488 se	524 W
		525 W Sb/Cx, D
		526 wk/Payne Dfd ca
		527 wo

Chromosome 4

528 ar/ey ^D	536 ci ^h /ey ^D	544 gvl sv ⁿ
529 bt	537 ci ^h	545 gvl sv ⁿ ey ^R
530 bt ^D /ci ^D	538 ci sv ⁿ ; + 3; w ^a ♂	546 Scn/ey ^D
531 bt ey ^R sv ⁿ	539 ey	547 spa
532 ci ey ^R	540 ey ²	548 spa ^{Cat} /ci ^D
533 ci gvl bt	541 ey ⁴	549 sv ^{35a}
534 ci gvl ey ^R sv ⁿ	542 gvl	550 sv ^{de} /ey ^D
535 ci ³⁶¹	543 gvl ey ^R	551 sv ⁿ

Multichromosomal Stocks

552 br ³ dx st ; ed Su ² -dx (1;2)	560 y f ⁺ ; bw; e; ci ey ^R (1;2;3;4)
553 dx st ; Su-dx (1;2)	561 bw; st (2;3)
554 e ^X -S; S/Cy (1;2)	562 Cy/Pm ds ^{33k} ; H/In(3R)Mo, Sb sr (2;3)
555 lz ^D /Hw; Cy/Pm (1;2)	563 dp ^v ; vo ³ (2;3)
556 v; bw (1;2)	564 Pm, dp b/Cy, sp ² ; Sb/D, CxF (2;3)
557 sy; tet (1;2)	565 px pd; Pdr H Dp (2;3)P/Pdr (2;3)
558 ptg; px pd; su-pd (1;2;3)	566 <u>1</u> (2)gl; <u>1</u> (3)tr/T(2;3)E (2;3)
559 al dp b Bl c px sp/Cy; D/C(3)X (2;3)	567 Mal pr

Attached-X

568 br ec/y ^{3d}	572 <u>y v</u> (517)
569 f B/su ^{S2} -v-pr v	573 <u>y v f</u> (578)
570 w ^{bf} M(1)36/w ^{bf} 3/sn ^{36a}	574 <u>y w</u> (731)
571 y/g ² ty	

Closed-X

575 X ^{c2}	577 In(X ^{c2})w ^{vc} /y Hw dl-49 m ² g ⁴ r ⁵
576 X ^{c2} , cv v f/C1B	(Catchaside)

Closed-Y

578 Y ^{lc} /y w Y ^S & <u>y v f</u> (Muller)

DeficienciesDeficiencies-X

579 Df(1)259-4	Df(1)259-4/dl-49 y Hw m ² g ⁴
580 Df(1)(0-ac)260-2	(624, 626, etc.)
581 Df(1)(0-sc)260-1	Df(1)(0-sc)/dl-49, y Hw m ² g ⁴
582 Df(1)B263-20	Df(1)B263-20/sc ⁷ AM
583 Df(1)bb	In(1)bb ⁻ , y sl ² bb ⁻ /In(1)AM (Dobzhansky)
584 Df(1)bb	In(1)bb ⁻ , y v car bb ⁻ /In(1)AM
585 Df(1)bb ¹	(599)
586 Df(1)ct268-30	Df(1)ct268-30, y/dl-49, y Hw m ² g ⁴
587 Df(1)ct268-42	Df(1)ct268-42, y/dl-49, y Hw m ² g ⁴
588 Df(1)g ¹	Df(1)g ¹ , f B/In(1)AM (L.V. Morgan)
589 Df(1)N8	Df(1)N8/dl-49, y Hw m ² g ⁴ (Mohr)
590 Df(1)N264-39	Df(1)N264-39 w ^{ch} /dl-49, y Hw m ² g ⁴
591 Df(1)N264-105	Df(1)N264-105(dm)/dl-49, y Hw m ² g ⁴
592 Df(1)rst ²	(77)
593 Df(1)svr	Df(1)svr, Dp(1;f)101 (Dp. het. or hom.)
594 Df(1)t282-1	Df(1)t282-1, y t ⁻ /dl-49, y Hw m ² g ⁴
595 Df(1)w258-45	Df(1)w258-45, y/dl-49, y Hw m ² g ⁴
596 Df(1)w258-48	Df(1)w258-48/dl-49, y Hw m ² g ⁴
597 Df(Y)Y ^{bb} -	y ² eq; Df(Y)Y ^{bb} -/y w bb Df(Y)Y ^{bb} -
598 Df(Y)Y ^{bb} -rev	YLS su ³ -s eq; Y ^{bb} -rev/y w bb ¹ Y ^{bb} -rev
599 Df(Y)Yst	we bb ¹ /we bb ¹ ; Yst ♀ & we bb ¹ ; Y ♂; NS, px sp/ <u>1</u> mr ²
	(Bridges)
600 Df(Y)Y"	XY', g ² B; Y"/y; Y(Het. In(2R)Cy) (Stern)
601 Df(2)42	Df(2)42, en/Cy, al ² lt ³ L ⁴ sp ²
602 Df(2)al	Df(2)al/Cy, E-S
603 Df(2)bw ⁵	Df(2)bw ⁵ sp ² /Ka
604 Df(2)bw ^{VDe2}	Df(2)bw ^{VDe2} Cy ^R /Gla
605 Df(2)M33a	Df(2)M33a/Pm ²
606 Df(2)MB	Df(2)MB/Cy, al ² lt ³ L ⁴ sp ²
607 Df(2)MS2	Df(2)MS2/Cy, pr

608 Df(2)MS4	Df(2)MS4/Cy, L ⁴ sp ²
609 Df(2)MS8	Df(2)MS8/Cy, al ² lt ³ L ⁴ sp ²
610 Df(2)MS10	Df(2)MS10/Cy, pr
611 Df(2)Px	Df(2)Px/Df(2)P; Dp(2;3)P/In(3R)Mo, Sb sr; w ^e
612 Df(2)Px ²	Df(2)Px ² , bw sp/Cy, al ² lt ³ L ⁴ sp ²
613 Df(2)rl ^{10a}	Df(2)rl ^{10a} lt cn/Cy
614 Df(2)rl ⁴³	Df(2)rl ⁴³ lt cn/Cy
615 Df(2)S ²	Df(2)S ² /Cy E-S
616 Df(2)S ³	Df(2)S ³ /Dp(2;2)A, Cy, E-S
617 Df(2)vg ^B	Df(2)vg ^B /Cy, L ⁴ sp ²
618 Df(2)vg ^C	Df(2)vg ^C /Rvd
619 Df(2)vg ^S	Df(2)vg ^S , Cn/Cy, al ² lt ³ L ⁴ sp ²

Deficiencies-3

620 Df(3)Ly	(437, 438)
621 Df(3)MS31	Df(3)MS31/T(2;3)Me
622 Df(3)sbd ¹⁰⁵	Df(3)sbd ¹⁰⁵ /Xa

Deficiencies-4

623 Df(4)M4	Df(4)M4/ey ^D
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Duplications

624 Dp(1;f)101	In(1)sc ⁸ , Df(0-ac)w ^a sc ⁸ Dp(1;f)101
625 Dp(1;f)101	(593)
626 Dp(1;f)107	In(1)sc ⁸ , Df(0-ac)w ^a sc ⁸ ; Dp(1;f)107
627 Dp(1;f)118	In(1)sc ⁸ , Df(0-ac)w ^a sc ⁸ ; Dp(1;f)118
628 Dp(1;f)135	In(1)sc ⁸ , Df(0-ac)w ^a sc ⁸ ; Dp(1;f)135 y ²
629 Dp(1;f)Xc ²	Dp(1;f)Xc ² y <u>1(1)7/y 1(1)7</u>
630 Dp(1;1)112	y f, Dp(1;1)112 (homozygous stock)
631 Dp(1;Y)L sc ³¹	sc ³¹ .YL/y.Y ^S ; y f=:; cn bw (e)
632 Dp(1;Y)sc ⁸	sc ⁸ .Y/Xc ² , t ² ; cn bw (Muller)
633 Dp(1;3)126	v f; Dp(1;3)126/Payne Dfd ca
634 Dp(Y;1)Su-4	B bb, Dp(Y;1)Su-4 (Stern)
635 Dp(2;2)S	Dp(2;2)S (+ast) (+ast) ho (hom.)
636 Dp(2;2)S	Dp(2;2)S (S ast) (S ast ⁴) net dp cl/Cy, E-S
637 Qn(2;2)S	Qn(2;2)S, (+ast) ⁵ , al ho/Cy, S ² E-S

InversionsInversions-X

638 In(1)AB	In(1)AB/y v f
639 In(1)AM	(10, 36, etc.)
640 In(1)BM ¹	In(1)BM ¹ v (tan-like)
641 In(1)BM ²	In(1)BM ² v+ (rev)
642 In(1)BM ²	In(1)BM ² (rev) f ^B <u>1 5</u> (rein.; mosaic)
643 In(1)BM ²	In(1)BM ² f ^{B27} /C ¹ B (mosaic in f/f ²⁷)
644 In(1)bb ⁻	(583, 584)
645 In(1)Cl	(In C ¹ B in 6, 46; with y Hw in 26)
646 In(1)dl-49	dl-49, cm ²
647 In(1)dl-49	dl-49, ty-1
648 In(1)dl-49	dl-49, ty-1 bb ¹ /y ² v f car
649 In(1)dl-49	dl-49, v ⁰ f
650 In(1)dl-49	dl-49, y fa ⁿ
651 In(1)dl-49	(y Hw m ² g ⁴ in 55, etc.; w lz ^S in 716, etc.)
652 In(1)dl-49, BM ¹	In(1)dl-49, sc y BM ¹ (homozygous)
653 In(1)rst ³	In(1)rst ³ , rst ³ (homozygous)

654 In(1)rst ³	In(1)rst ³ , y rst ³ car bb
655 In(1)sc ⁴	In(1)sc ⁴ , y sc ⁴
656 In(1)sc ⁷	In(1)sc ⁷ , sc ⁷
657 In(1)sc ⁷	In(1)sc ⁷ , sc ⁷ , wa
658 In(1)sc ⁷	In(1)sc ⁷ , sc ⁷ wa fa ² sn ³ v
659 In(1)sc ⁷ , AM	(582)
660 In(1)sc ⁸	In(1)sc ⁸ , sc ⁸
661 In(1)sc ⁸	In(1)sc ⁸ , sc ⁸ cv v f/y f:=
662 In(1)sc ⁸	In(1)sc ⁸ , y ³ ld sc ⁸ wa
663 In(1)sc ⁸	In(1)sc ⁸ B In-S wa
664 In(1)sc ⁸ , dl-49	(with y ³ ld wa lz ^s B in 14, 23, etc.)
665 In(1)sc ⁹	In(1)sc ⁹ , sc ⁹ Bx f t wa/w dl-49 lz ^s
666 In(1)sc ^{J1}	In(1)sc ^{J1} : Del 24
667 In(1)sc ²⁶⁰⁻¹⁴	In(1)sc ²⁶⁰⁻¹⁴ , sc ²⁶⁰⁻¹⁴
668 In(1)sc ²⁶⁰⁻²²	In(1)sc ²⁶⁰⁻²² , sc ²⁶⁰⁻²²
669 In(1)wm ⁴	In(1)wm ⁴ (bb?)
670 In(1)wm ⁴	In(1)wm ⁴ , y ^{48h} w ^{48h} sn ^{48h} m ^{48h} (Lindsley)
671 In(1)y ⁴	In(1)y ⁴ , y ⁴
672 In(1)y ⁴	In(1)y ⁴ , y ⁴ cv v f

Inversions-2

673 In(2)bwVDe1	In(2)bwVDe1/b 1t <u>1</u> cn mi sp
674 In(2)bwVDe2	In(2)bwVDe2/Rev. <u>1</u>

2L Inversions

675 In(2L)Cy	In(2L)Cy, al ² ast ³ b pr (Cy not present)
676 In(2L)Cy	(with Cy dp ² b pr in 236, 291, etc.)
677 In(2L)Cyt	(with Su-S dp ² pr in 235, 341)
678 In(2L)ho	(761)
679 In(2L)NS	(257)
680 In(2L)t	In(2L)t, 1t <u>1</u> L ⁴ sp ² /Pm, ds ^{33k}
681 In(2L)t	(with <u>1</u> (2)B in 280, with <u>1</u> (2)R in 290)

2L+2R Inversions

682 Ins(2L+2R)Cy	(in balancers as Cy; Cy S ² and Cy, S ² E-S; S ² and S ² E-S do not carry Curly mutant)
683 Ins(2L+2R)Cy, (2R)bwV34, Cy	(172, 288, 289)
684 Ins(2L)Cy, (2R)NS, Cy	(298)
685 Ins(2L+2R)NS	NS, mr/Cy
686 Ins(2L+2R)NS	(with px sp in 329, 599)

2LR Inversions

687 In(2LR)dp	(183, 190)
688 In(2LR)Gla	(303, 343)
689 In(2LR)Pm	(with ds ^{33k} in 227, etc.)
690 In(2LR)Pm ²	(292, etc.)
691 In(2LR)Rvd	(173, 618)
692 In(2LR)U	(204)
693 In(2LR)Rev	(674)

2R Inversion

694 In(2R)Cy	(294)
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Inversions-33L Inversions

695 In(3L)D	(D and D ³ stocks)
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- 696 In(2L)P^{mot-36e} In(3L)P^{mot-36e}/R
 697 In(3L)P (with gm in 467; with Mé in 491, etc.)

3L+3R Inversions

- 698 Ins(3L+3R)P Payne^{ra}, ra/ra 1(3)ra
 699 Ins(3L+3R)P (as LVM, Payne; and Payne Dfd ca)

3LR Inversions

- 700 In(3LR)Cx, D (413, 414, etc.)
 701 In(3LR)sep In(3LR)sep, sep ri p^p

3R Inversions

- 702 In(3R)C (with cd in 486, with e in 425, with e 1(3)e in 439, with Sb e 1(3)e in 445)
 703 In(3R)D1B In(3R)D1B, st D1B/In(3R)P^W, st 1(3)W ca
 704 In(3R)Cyd (405, 442)
 705 In(3R)hp (424)
 706 In(3R)Hu In(3R)Hu, Hu Sb^{Sp1}/Payne
 707 In(3R)Mo In(3R)Mo, sr/Xa, ca
 708 In(3R)Mo (with Sb sr in 400, 562, etc.)
 709 In(3R)P In(3R)P^{FLA} (homozygous)
 710 In(3R)P (with st 1(3)W ca in 703)

TranslocationsTranslocations-1;2

- 711 T(1;2)106 T(1;2)106 (hom. ♀: het. ♂)
 712 T(1;2)Bbd T(1;2)Bbd/Cy M(2)e/Cy ♂
 713 T(1;2)Bld T(1;2)Bld, Bld/C1B (carries In(2R)Cy)
 714 T(1;2)f257-5 T(1;2)f257-5/In(1)AM (Demerec)
 715 T(1;2)lt T(1;2)lt/Cy (carries eq, possibly su³-s)
 716 T(1;2)N264-9 T(1;2)N264-9/dl-49, w lz^s (=N⁹)
 717 T(1;2)N264-10 T(1;2)N264-10/y w dm (=N10)
 718 T(1;2)sc^{S2} T(1;2)sc^{S2}/Cy
 719 T(1;2)wy274-2 T(1;2)wy274-2, w^a sn B/In(1)AM

Translocations-1;3

- 720 T(1;3)1 T(1;3)1, In(3R)P Dfd ca/sc pn³ g² f Bx²
 721 T(1;3)3 T(1;3)3 (hom. ♀: het. ♂)
 722 T(1;3)263-4 T(1;3)263-4, y sc B¹/In(1)AM
 723 T(1;3)283-3 T(1;3)283-3/w^e sn
 724 T(1;3)N264-6 T(1;3)N264-6 y/y w dm (=N⁶)
 725 T(1;3)04 T(1;3)04/C1B
 726 T(1;3)05 T(1;3)05 D/y
 727 T(1;3)sc^{J4} (1 y ac) sc⁸ w^a; T(1;3)sc^{J4} L.
 728 T(1;3)sc260-15 T(1;3)sc260-15/dl-49, y Hw m² g⁴
 729 T(1;3)v T(1;3)v, sc cv v f/In(1)y⁴, y⁴ sn w^a ("hi-non")
 730 T(1;3)w^{Vco} T(1;3)w^{Vco}, v f/C1B^{36d}

Translocations-1;4

- 731 T(1;4)A13 T(1;4)A13/y w
 732 T(1;4)B³ T(1;4)B³/y f:=; bw; e; ci ey^R
 733 T(1;4)N^{8a} T(1;4)N^{8a}/dl-49 w lz^s
 734 T(1;4)N264-84 T(1;4)N264-84, y/dl-49, y Hw m² g⁴
 735 T(1;4)sc⁸ T(1;4)sc⁸, B w^a/y f:=
 736 T(1;4)w^{m5} T(1;4)w^{m5}
 737 T(1;4)w^{m5}(1;3)sc^{J4} T(1;4)w^{m5}L; T(1;3)sc^{J4R} (C1B)

738 T(1;4)wVD3 (=w258-21) T(1;4)wVD3/Ins(1)sc⁸, dl-49, y³ld wa lz^s B
 739 T(1;4)w258-18 T(1;4)w258-18 y/y w dm

Translocations-Y;2

740 T(Y;2)A (274)
 741 T(Y;2)B T(Y;2)B/b c
 742 T(Y;2)C (216, 310)
 743 T(Y;2)E (161, 212)
 744 T(Y;2)G (183, 184)
 745 T(Y;2)J (317)
 746 T(Y;2)rl T(Y;2)rl, lt cn/b lt bw

Translocations-Y;2;3

747 T(Y;2;3)F (471)
 748 T(Y;2;3)I (345)

Translocations-2;3

749 T(2;3)101 al T(2;3)101 sp²/Cy L⁴ sp²
 750 T(2;3)101 ru h T(2;3)101 e⁴ ro ca/Payne, Dfd ca
 751 T(2;3)108 al T(2;3)108 c sp²/Cy, al² lt³ L⁴ sp²
 752 T(2;3)109 T(2;3)109 pP/Payne Dfd ca
 753 T(2;3)A B1 T(2;3)A; ru h D TA ss es/Payne
 754 T(2;3)B al B1 T(2;3)B sp²/Cy, L⁴ sp²
 755 T(2;3)B T(2;3)B; ru h D TB as e^s/Payne
 756 T(2;3)bw^{V4} T(2;3)bw^{V4}/Cy
 757 T(2;3)bw^{V5} T(2;3)bw^{V5}/Cy
 758 T(2;3)bw^{VDe3} T(2;3)bw^{VDe3}/Cy, ru h st ca
 759 T(2;3)bw^{VDe4} T(2;3)bw^{VDe4}/Cy, dp²
 760 T(2;3)C B1 T(2;3)C; ru h D TC ss e^s/Payne
 761 T(2;3)dpl50 In(2L)ho T(2;3)dpl50/Cy, E-S
 762 T(2;3)E T(2;3)E/Cy; D
 763 T(2;3)Mé (477, 478, 480)
 764 T(2;3)P (611)
 765 T(2;3)pGr T(2;3)pGr/Cy
 766 T(2;3)Dp-3 T(2;3)Dp-S; ho/Cy, E-S (hom. viable)
 767 T(2;3)Xa T(2;3)Xa/1(3)Xa R
 768 T(2;3)Xa (in 485, 501, etc.; with ca in 412)

Translocations-2;4

769 T(2;4)a T(2;4)a/Cy, pr; ey²
 770 T(2;4)ast^V T(2;4)ast^V/Cy al² lt³ L⁴ sp²
 771 T(2;4)b T(2;4)b/Cy, pr; ey²
 772 T(2;4)d al dp T(2;4)d px sp/Cy pr; ey²
 773 T(2;4)d T(2;4)d/Cy, pr

Translocations-3;4

774 T(3;4)a D T(3;4)a/Mé
 775 T(3;4)c T(3;4)c/Payne, Dfd ca
 776 T(3;4)e T(3;4)e, D/Mé
 777 T(3;4)e h th st T(3;4)e cu sr e^s ca/Payne, Dfd ca
 778 T(3;4)f T(3;4)f, h th st cu sr e^s ca/Payne, Dfd ca
 779 T(3;4)f T(3;4)f/Mé

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Note: This supersedes all previous lists.

a. Wild Stocks

- a1 + Amherst 3 (homoz. Singh, 1939)
- a2 + Canton-S, A (iso, 1952)
- a3 + Canton-S, B (iso, 1952)
- a4 + Canton-S, C (iso, 1952)
- a5 + Crimea
- a6 + Florida 5 (homoz. Singh, 1939)
- a7 + Samarkand
- a8 + Seto, Japan (iso, 1952)
- a9 + (iso 2, \$a)
- a10 + (iso 2, \$b)

b. Chromosome 1 (X)

- b1 ac³ (=sc¹⁰) w^a
- b2 ac³ w^a & ac³ w^a ct f. =
- b3 sc³ w^a.Dp sc^{V1} & y f. =
- b4 At & y f. =
- b5 B
- b6 (B¹) f B¹ (Luce 436.1) & y f. =
- b7 (B^{M1} -1) cm B^{M1}, In & y f. =
- b8 (B^{M1} -2) sn³ v B^{M1} & y f. =
- b9 (B^{M1} -3) v m B^{M1}, In & y f. =
- b10 (B^{M1} -4) y rb cx B^{M1}, In / C¹ B
- b11 (B^{M2}) v⁺ (rev.v) B^{M2}, In
- b12 (B^{M2} rein.) v⁺ (rev.v) B^{M2+} (rev.B, rein.) f^{B15} (mosaic)
- b13 (bb⁻, In-1) y sl² bb⁻, In / InAM
- b14 (bb⁻, In-2) y v car bb⁻, In / y InAM
- b15 bo
- b16 cm ct⁶ sn³ & y f. =
- b17 ctⁿ oc / y ³ld sc⁸ B In49 lz^s w^a
- b18 ct⁶ v dy g f / InA99 sn^{33f}
- b19 ("doubler") y w^a.Dp(B^S) / sc^{S1} In49 v
- b20 f B B / InAM
- b21 f B od car / sc^{S1} f In49 v
- b22 f fu / C¹ B
- b23 f⁵ su-f
- b24 f^{ex18aH1} car / y sc^{S1} B InS
- b25 f^x car & y f. =
- b26 f^x Dp(f+ih)
- b27 g² pl & y f. =
- b28 g² ty & y f. =
- b29 g^{im} sd^s / y sc^{S1} B InS
- b30 g^w
- b31 g^x, Inh & y f. =
- b32 gt v
- b33 In49 & y f. =
- b34 In49 sn^{x2} & y f. =
- b35 In49 v sn^{x2} B & y f. =
- b36 ("leftester 1") sc^{J1} pn w rb cm ct / y sc⁸ f In49 w^a
- b37 ("leftester 2") sc^{J1} oc ptg B^{M1} / y sc^{S1} f In49 v sc⁸
- b38 lz & y f. =
- b39 {"maple"} y ac sc pn w rb cm ct⁶ ras² v g² f car & y f. = ;
sc¹⁹ⁱ / Cy, InL
- b40 N⁸ / y Hw In49 m g

b41 oc ptg³ / Cl B
 b42 oc ptg Tu / sc^{S1} fu In49 sc⁸
 b43 od Dp(f+ih) & y f:=
 b44 or (overripe eye) & y f:=
 b45 ("plex-Tu") y ac sc pn w rb cm ct⁶ sn³ ras² v dy g f Tu car / y sc^{S1} g
 In49 m sc⁸
 b46 pn,Inh 1 / y Hw In49 m g
 b47 ras²
 b48 ras⁴ m / Cl B
 b49 rst³,In & y f:=
 b50 rst⁻(-rst²) / y Hw In49 m g
 b51 Sc (Scotched eye) / y Hw In49 m g
 b52 sc ct⁶ car & y f:=
 b53 sc ctⁿ oc car / y In49 sn^{x2}.B^s
 b54 sc Sc v f car / sc^{S1} B InS
 b55 sc t² v car & y f:=
 b56 sc t² v f Tu car & y f:=
 b57 sc t² v f & y f:=
 b58 sc w BBL,In.Y^s & y f:=
 b59 sd rex / y sc⁸ B f In49 v
 b60 sn³.Dp(sc^{S1}) & y f:=
 b61 sn³ lz^{46f24} ras⁴ v & y f:=
 b62 sn^c / y Hw In49 m g
 b63 spl rb cx & y f:=
 b64 svr wa
 b65 (tandem X.X) y² X⁺.sc⁸ wa InS B ♀ & y^{S1} sc⁸ sn⁵ w ♂
 b66 t² & y f:=
 b67 ("tester 1") y ac pn w rb wy² g² & y f:= ; sc¹⁹ⁱ / Cy
 b68 ("tester 2") y² wa cm wy² g² car & y f:= ; sc¹⁹ⁱ / Cy
 b69 ("tester 3") y rb cm ras² g² & y f:= ; sc¹⁹ⁱ / Cy
 b70 Tu & y f:=
 b71 un Bx / InAM ptg⁴
 b72 w
 b73 wa' ; (b cn cru mr / InsNS px sp)
 b74 we
 b75 wec3 (ecru)
 b76 w^{mR7aH1}
 b77 w^{m4},In(3Cl-2 & 20)
 b78 w^{m4},In g? v w^{mMc}
 b79 w^{mMc},In & y f:=
 b80 w^{mMc},In f w^{m4}
 b81 (w^r-reddish) sc⁸ InS w^r
 b82 (w^r-reddish B) sc⁸ B InS w^r & y f:=
 b83 Xc² & y f:=
 b84 Xc² t² & y f:=
 b85 Xc² v & y.= (bw; e; ey)
 b86 Xc² y v
 b87 Xc³(tm-ac) wa InS B & y f:= / sc⁸.Y (ring from tandem X.X)
 b88 y ac dvr⁽⁺⁾ v bb
 b89 (y ac)⁻ f (from y f:=) & y f:=
 b90 y ac lz² v f & y f:=
 b91 y ac pn w rb cx (/ y sc⁴ B InS wa sc⁸)
 b92 y ac pn w rb cm ct⁶ sn³ oc ras² v dy g f od car sw / y sc^{S1} B In49 v wa
 b93 y ac sc pn & y f:=
 b94 y ac sc pn w.Dp sc^{V1} & y f:=
 b95 y ac sc pn w rb cm ct⁶ ; sc¹⁹ⁱ / & y f:=
 b96 y ac sc pn w spl rb cx. (sc¹⁹ⁱ(b pr) /) & y f:=(sc¹⁹ⁱ(b pr) /)
 b97 y ac sc v & y f:=

b98 y ac t².Dp(y⁺ sc^{S1}) & y f:=
 b99 y ct⁶ & y f:=
 b100 y ct⁶ dvr² v f & y f:=
 b101 y ct⁶ f & ac w^a ct f:=
 b102 y ct⁶ f car & y f:=
 b103 y ct⁶ f.Dp(y⁺ sc^{V1}) & y f:=
 b104 y ct⁶ lz.Y^S & y f:=
 b105 y ct⁶ t² v f car & y f:=
 b106 y fa v & y f:=
 b107 y fa wy² g²
 b108 y In49 m f car & y f:=
 b109 y In49 sn^{x2} B.Y¹ & y f:=
 b110 y In49 sn^{x2} bb¹ & y f:=
 b111 y In49 v B & y f:=
 b112 y In49 v f car & y f:=
 b113 y pn w cm ct⁶ oc ras² v dy g² f od car sw / sc^{S1} car B In49 v sc⁸
 b114 y rst³,In car bb
 b115 y sc
 b116 y sc v g & y f:=
 b117 y sn v & y f:=
 b118 y t² v f
 b119 y v (isogenic)
 b120 y v f^x Dp(f⁺ih) & y f:=
 b121 y w f
 b122 y w f.Dp(sc^{S1})
 b123 y w In49 f
 b124 y w In49 lz^S.Dp(y⁺ sc^{V1}) & y f:=
 b125 y w sn⁵
 b126 y w⁻²⁵⁸⁻¹¹ 1 / y Hw In49 m g
 b127 y w t² v f & y f:=
 b128 y w^{m258-18} t² v f & y f:=
 b129 y w⁻²⁵⁸⁻¹¹ t² v f / y sc^{S1} B InS
 b130 y² ec cv v f car
 b131 y² oc ptg B^{M2} & y f:=
 b132 y² oc ptg g,Inh & y f:=
 b133 y² v
 b134 y² v f car
 b135 y² v f car.Dp(y⁺ sc^{V1}) & y f:=
 b136 y² v f car su-f & y f:=
 b137 y² w^a ct f.Dp(sc^{S1}) / Cl B
 b138 y² w^a ct mw f / y sc^{S1} B InS
 b139 y² w^a InS B
 b140 y² w^a sn⁵ B & y f:=
 b141 y² w^a v
 b142 y^{3P},In B
 b143 y⁴,In w^a
 b144 y^{18c11}

c. Scute alleles

(listed alphabetically according to scutes, regardless of position of the scute in linear order)

c1 sc² pn
 c2 y sc⁴ B v^{41b} / y w In49 lz^S
 c3 y sc⁴ In49 w^a & y f:= ; Cy / sc¹⁹¹
 c4 y sc⁴ InS w^a ; S sc¹⁹¹ Bl / Cy L⁴ sp
 c5 y sc⁵
 c6 sc⁶ car
 c7 sc⁷ oc ptg g,Inh & y f:=

c8 sc⁷ w^a
 c9 sc⁸ B
 c10 sc⁸ B In49 & y f:=
 Age Exp. struct. changes (c11-c16) sc⁸ B 1 w^a / w sn ♀ & w' sn ♂
 c11 ♀1 18 Allay (Dob.6)
 c12 ♀1 18 Al2ay (Dob.5)
 c13 ♀1 23 Bl8io (Dob.2)
 c14 ♀1 53 Bl4d,am (A7)
 c15 ♀1 69 Bl4ay (nd, c.o.)
 c16 ♀1 74 Allam Notch
 c17 sc⁸ B In49 m & y f:=
 c18 sc⁸ bb w^a
 c19 sc⁸ car f In49 v & y f:=
 c20 sc⁸ f In49 v & y f:=
 c21 sc⁸ g In49 & y f:=
 c22 sc⁸ g In49 m / w sn⁵s
 c23 sc⁸ In49 v
 y- from X-raying oogonia y- sc⁸ B / y Hw In49 m g ♀ & y Hw In49 m g ♂
 (c24-c28)
 c24 y♀31 A2
 c25 y♀31 A16
 c26 y♀31 C2
 c27 y♀31 C10
 c28 y♀31 C21
 c29 (y ac)B270 (dappled) sc⁸ B w^a / w In49 lz^s
 c30 yS1 sc⁸
 c31 yS1 sc⁸ B f In49 v w^a & y f:=
 c32 yS1 sc⁸ B In49
 c33 yS1 sc⁸ In49 lz^s w^a / na
 c34 yS1 sc⁸ B f In49 v & y f:=
 c35 yS1 sc⁸ f In49 lz^s / w sn⁵s
 c36 yS1 sc⁸ f InS w^a
 c37 yS1 sc⁸ sn³ w
 c38 yOX sc⁸ sn⁵ w & y f:=
 c39 sc⁹ In Bx f t w^a / w In49 lz^s
 c40 sc¹⁹⁻ ; fes sc¹⁹ⁱ b pr / Cy dpTh pr
 c41 sc¹⁹⁻ ♂ & y f:= ♀ ; fes sc¹⁹ⁱ b pr / Cy dpTh pr
 c42 sc²⁸ w^a
 c43 sc²⁹ w^a
 c44 sc⁴⁵ 1 / sc^{S1} InS
 c45 sc^{52c} su-v^{52c} ras² v m & y f:=
 c46 sc^C / y sc^{S1} B InS
 c47 sc^{C1}.III / y ac sc pn w spl rb cx (sc¹⁹ⁱ)
 c48 sc^H,TX4 & y f:=
 c49 1J1 sc^{J1} / Del (sc⁷) 2 & y f:=
 c50 1J1 sc^{J1} / Del(X)24
 c51 1J1 sc^{J1} / Del(Xc)Ag (Pontecorvo)
 c52 w^{m5L} ; sc^{J4R} ♂ & y f:= (w^{m5L}/) ♀
 c53 sc^{J6} B & y f:=
 c54 sc^{L3},TX4 (spoon-like)
 c55 sc^{L6}
 c56 sc^{Mc},TX3 / y Hw In49 m g
 c57 sc^{S1} B In49 ct-1 lz^s / w sn⁵s
 c58 sc^{S1} B In49 lz^s / w sn⁵s bb
 c59 sc^{S1} car f In49 v / "plex"
 c60 sc^{S1} f In49 v / y ac sc pn w rb cm ct⁶ sn³ ras⁴ v m g f car
 c61 sc^{S1} f In49 v w & y f:=
 c62 sc^{S1} In49 v & y f:=

c63 y sc^{S1} B f In49 v / oc ptg
 c64 y sc^{S1} B In49 sn^{x2} & y f:=
 c65 y sc^{S1} B In49 v & y f:=
 c66 y sc^{S1} car f In49 m / oc ptg
 c67 sc^{S2,T12} / Cy
 c68 sc^{V1},Inp v / y^{S1} sc⁸ B f In49 v
 c69 y.sc^{V1} y⁺ & y f:=
 c70 y v.sc^{V1} y⁺ & y f:=
 c71 sc^{V2},Inh

d. Combinations of scute or similar inversions

d1 y sc⁴ B InS w^a sc⁸ & y.=
 d2 y sc⁴ f w sc⁸ / y Hw In49 m g
 d3 y sc⁴ In49 sn^{x2} sc⁸ & y f.=
 d4 y sc⁴ In49 w^a sc⁸ & y f:=
 d5 y sc⁴ In49 v sc⁸ & y f:=
 d6 y sc⁴ w sc⁸ (extra Y in ♀)
 d7 y sc⁴ B In49 lz^s v sc^{S1} / w sn⁵ bb
 d8 y sc⁴ In49 v sc^{S1} & y f:=
 d9 y sc⁴ InS sc^{S1} (extra Y in ♀)
 d10 y sc⁴ InS sc^{S1} / Cl B
 d11 (sc⁶-sc⁸⁻⁴ rein.) sc⁸.Y / sc⁶ B, r't end of X from reinversion 8-4 &
 sc⁸.Y / y f:=
 d12 sc⁸ B InS w^a sc⁴ & y f:= ; (sc¹⁹¹/)
 d13 y rein.sc⁸⁻⁴ w^a InS B & y f:= ; sc¹⁹¹ lt en / Cy lt en²
 d14 sc⁸.Y / y rein.sc⁸⁻⁴ w^a InS bb ; sc¹⁹¹/♂ & sc⁸.Y / y f:= ; (sc¹⁹¹/) ♀
 d15 y rein.sc⁸⁻⁴ w^a InS f car.Dp(sc^{V1}) ; sc¹⁹¹/ & y f:=(sc¹⁹¹/)
 d16 y^{S1} sc⁸ B InS sc^{S1} / w sn^{5s}
 d17 y^{S1} sc⁸ B InS y^{3P}
 d18 y^{S1} sc⁸ f InS v y^{3P}
 d19 y^{S1} sc⁸ InS y^{3P} ; Cy / Scd
 d20 sc^{-17aH3} f car.sc^{V1} ; Cy / sc¹⁹¹ ♂ & y f:=Cy / sc¹⁹¹ ♀
 d21 sc^{L8} sc⁸ & y f:=
 d22 sc^{L8} g^s v lz^g sc⁸ & y f:=
 d23 sc^{L8} v sc⁸ & y f:=
 d24 ("Insc") sc^{S1} In49 sc⁸
 d25 sc^{S1} In49 sn^{x2} sc⁸ & y f.=
 d26 sc^{S1} At In49 sc⁸
 d27 sc^{S1} At In49 v w^a sc⁸ & y f:=
 d28 sc^{S1} B g In49 m sc⁸ & y f:=
 d29 ("Binsc") sc^{S1} B In49 sc⁸ & y f:=
 d30 sc^{S1} B In49 lz^s sc⁸ / y ac sc pn w v g f
 d31 sc^{S1} B InS w^a sc⁸ (Muller-5)
 d32 sc^{S1} B InS w^a sc⁸ & y f:=
 d33 sc^{S1} car B In49 v sc⁸ & y f:=
 d34 sc^{S1} car m w^a sc⁸ / w In49 lz^s
 d35 sc^{S1} f In49 v w^a sc⁸ & y f:=
 d36 sc^{S1} In49 v sc⁸ & sc v f.=
 d37 ("Binscy") y sc^{S1} B In49 sc⁸ & y f:=
 d38 y sc^{S1} B In49 lz^s sc⁸ / y ac sc pn w v g f
 d39 y sc^{S1} B In49 sn^{x2} sc⁸ / oc ptg
 d40 y sc^{S1} In49 sn^{x2} sc⁸ & y f.=
 d41 y sc^{S1} B In49 sn^{x2} v sc⁸ & y f:=
 d42 y sc^{S1} B In49 v sc⁸ & y f:=
 d43 y sc^{S1} B In49 v w^a sc⁸ & y f:=
 d44 sc^{S1} In49 m w sc⁸ / w sn⁵
 d45 y sc^{S1} f In49 v sc⁸ & y f:=
 d46 y sc^{S1} f In49 v w^a sc⁸ & y f:=

- d47 y sc^{S1} g In49 m sc⁸ & y f:=
d48 y sc^{S1} In49 sc⁸
d49 y sc^{S1} In49 ct¹ v sc⁸ / y v car bb⁻
d50 y sc^{S1} In49 v sc⁸
d51 ("winscy") y sc^{S1} In49 w sc⁸
d52 sc^{S1} f InS y^{3P} & y f:=
d53 sc⁸.Y / sc^{V1}-v ♂ & sc⁸.Y / y f:= ♀ ; sc¹⁹¹ / Cy
d54 sc^{V2} B y^{3P}
d55 y^{3P} InS sc^{S1} & y f:= ; Cy / sc¹⁹¹

e. Translocations of X

- e1 TX2A124 & y v f:=
e2 TX5 ♂ sc^{S1} B InS w^a sc⁸ bb / w sn⁵ bb
e3 TX3 ♂ sc^{S1} B InS w^a sc⁸ / w sn⁵ bb
e4 TX(1B3+)4 sc⁸ B w^a
e5 TX(3C2)4 w^{m5} & y f:=
e6 TX(3C2)4 w^{m5} v f bb / w^{m5} C¹ B
e7 TX(3C4)4 y w²⁵⁸⁻¹⁸ / y Hw In49 m g
e8 TX(4c3)4 & y f:=
e9 TX(9A1)4 & y f:=
e10 TX(9B&20)4 "W13" / C¹ B
e11 TX(9B&20)4 "W13" car
e12 TX(9B&20)4 "W13" sc v^m g / C¹ B
e13 TX(9B&20)4 "W13" y w & y f:=
e14 TX(11A7)4 & y f:=
e15 TX(11B16)4 & y f:=
e16 TX(13B8-9)4 "Sidky a" & y f:=
e17 TX(16A1)4 B^S & y v f:=
e18 TX(16A1)4 B^S.Y^S / sc.Y¹ & y w f:= / sc.Y¹
e19 TX(rt of car)4 & y f:=

f. Altered Y's, sometimes with mutants in X and/or 2

- f1 ("X.Y") Y^S.X InEN y.Y¹ sc⁸ y⁺ (no free Y)
f2 ("X.YBy") Y^S.X InEN B y.Y¹ & y² su-w^a bb.= (no free Y)
f3 X.Y ptg oc sn⁵ ♂ & sc ctⁿ oc ptg car.In49 sn^{x2} y ♀ (no free Y)
f4 X.Y v ptg oc sn⁵ ♂ & y sc t² v f car.= (no free Y)
f5 Y / X.Y ♂ & Y / y f:=
f6 Y⁺ / sc w ct f.Y^S & y f:=
f7 Y⁺ / w^a ct⁶ f.Y¹ (sc^{S1} B InS)
f8 Y⁺ / X⁺.Y¹ & y w^a.=
f9 Y⁺ / y In49 v.Y¹
f10 Y bb⁻ / v ; bw^{VA} / B1 L²
f11 Y bb⁻ / y v ; bw^{VA} / B1 L²
f12 Y:bw⁺ ; bw⁺ (vg,pr) (Y with region of II containing bw inserted in Y¹)
f13 Y:bw⁺ / w^{mMc} f w^{m4} ; cn bw
f14 Y:bw⁺ / w^{mR7AH1} ; cn bw
f15 Y:bw⁺ / X ; cn bw
f16 Y:bw⁺ / Xc²
f17 Y:bw⁺ / Xc² t² ; cn bw
f18 Y:bw⁺ / y v ; bw
f19 sc⁸.Y / ac³ w^a
f20 ("Df sn c24") sc⁸.Y / 1 (y ac)⁻ B In49 sn^{x2} sc⁸ ♂ & y f:= ♀
f21 ("Df sn c26") sc⁸.Y / 1 (y ac)⁻ B In49 sn^{x2} sc⁸ ♂ & y f:= ♀
f22 sc⁸.Y / 1J1 sc^{J1} & y f:=
f23 sc⁸.Y / 1J1 sc^{J1} pn w rb / sc t² v C¹ B
f24 ("Max") sc⁸.Y / 1 (y ac)⁻ B In49 sn^{x2} sc⁸ / y pn w rb cm ct⁶ oc ptg ras² v dy g² f od car sw

- f25 $sc^8.Y / sc\ w\ B.Y^S ; Cy / S\ Sp\ ab^2\ ltd\ \&\ y\ f:=$
 f26 $sc^8.Y / sc\ w\ ct\ f.Y^S\ \&\ y\ f:= ; Cy / S\ Sp\ ab^2\ ltd$
 f27 $sc^8.Y / Xc^2$
 f28 $sc^8.Y / Xc^2\ t^2\ \&\ y\ f:= ; cn\ bw$
 f29 $sc^8.Y / Xc^2\ y\ v\ \&\ y\ f:=$
 f30 $sc^8.Y / y\ ac\ sc\ B.Dp(sc^{S1})\ \&\ y\ f:=$
 f31 $sc^8.Y / y\ ac\ sc\ t^2\ B.Dp(sc^{S1})\ \&\ y\ f:=$
 f32 $sc^8.Y / y\ rein.sc^{8-4}\ B.Dp(sc^{S1})\ \&\ y\ f:=$
 f33 $sc^8.Y / y\ v$
 f34 $sc^8.Y / y\ v ; bw$
 f35 $sc^8.Y\ \delta / \&\ Y:bw^+\ \phi / w^{m4} ; cn\ bw$
 f36 $sc^8.Y\ \delta\ \&\ Y:bw^+\ \phi / y\ sc^8\ B\ In49 ; cn\ bw$
 f37 $sc^8.Y\ \phi\ \&\ Y:bw^+\ \delta / y\ sc^8\ B\ In49 ; cn\ bw$
 f38 $sc^8.Y\ \delta\ \&\ Y:bw^+\ \phi / y\ v ; bw$
 f39 $sc^8.Y\ \phi\ \&\ Y:bw^+\ \delta / y\ v ; bw$
 f40 $sc^8.Y\ \delta\ \&\ Y^+\ \phi / y\ v ; bw^{VA} / L^2\ 1$
 f41 $Y_1 / f.Y^S\ \&\ sc\ v\ f.=$
 f42 $Y_1 / f.Y^S\ \&\ y^2\ wy^2\ g^2\ f.=$
 Sterilizer ("sz") stocks (f43-f50)
 f43 ("sz +") $Y_1^c / X.Y^S$
 f44 ("sz bw") $Y_1^c / X.Y^S ; bw$
 f45 ("sz bw e") $Y_1^c / X.Y^S ; bw ; e$
 f46 ("sz c") $Y_1^c / X.Y^S\ \&\ y\ v\ f.= ; c$
 f47 ("sz e") $Y_1^c / X.Y^S\ \&\ y\ v\ f.= ; e$
 f48 ("sz w") $Y_1^c / w.Y^S$
 f49 ("sz y e") $Y_1^c / y\ In49\ v\ f.Y^S ; e$
 f50 ("sz y w") $Y_1^c / y\ w.Y^S\ \&\ y\ ct^6\ f.=$
 f51 ("fac") $Y_1^c / y^2\ oc\ ptg\ fu.Y^S\ \delta\ \&\ Y_1^c / y^2\ oc\ ptg\ B^{M1} / sc^{S1}\ fu$
 In49 $sc^8\ \phi$
 f52 ("jynd") $Y_1^c / y\ sn^5\ oc\ v.Y^S\ \delta\ \&\ Y_1^c / sc^{J1}\ pn\ w\ rb\ cm\ ct^6\ oc\ ras^2$
 v dy $g^2\ f\ od\ car\ sw / y\ sc^{S1}\ B\ In49\ sn^{x2}\ sc^8\ \phi$
 f53 $Y_1^c / sc\ w\ B.Y^S\ \&\ y\ ct^6\ f.=$
 f54 $Y_1^c / sn^5\ oc\ ptg.Y^S\ \&\ Y_1^c / y\ v\ f.=$
 f55 $Y_1^c / y\ ct^6\ f.Y^S\ \&\ y\ w^a.=$
 f56 $Y_1^c / y\ w\ sn^5\ oc.Y^S\ \&\ y\ v\ f.=$
 f57 $Y_1^c / y\ w.Y^S\ \&\ y\ v\ f.=$
 f58 $Y_1^c / y^2\ oc\ ptg\ fu.Y^S\ \&\ Y_1^c / y\ w^a.=$
 f59 $sc.Y_1 / y.Y^S\ \&\ ac\ w^a\ ct^6\ f.=$
 f60 $sc.Y_1 / ct^6\ mw\ f.Y^S\ \&\ y\ f:=$
 f61 $sc.Y_1 / sc\ w\ BB^L, In.Y^S\ \&\ y\ f:=$
 f62 $sc.Y_1 / sc\ w\ B.Y^S\ \&\ y\ f:= ; Cy / S\ Sp\ ab^2\ ltd$
 f63 $sc.Y_1 / sc\ w\ ct^6\ B.Y^S\ \&\ y\ f:=$
 f64 $sc.Y_1 / sc\ w\ ct^6\ f.Y^S\ \&\ y\ f:= ; Cy / S\ Sp\ ab^2\ ltd$
 f65 $sc.Y_1 / w^a\ ct^6\ f.Y^S\ \&\ y\ f:=$
 f66 $sc.Y_1 / y\ ac\ sc\ ct^6\ f.Y^S$
 f67 $sc.Y_1 / y\ ac\ sc\ pn\ ct^6\ f.Y^S\ \&\ y\ f:=$
 f68 $sc.Y_1 / y\ ac\ sc\ w^a\ ct^6\ f.Y^S\ \&\ y\ f:=$
 f69 $sc.Y_1 / y\ ct^6\ f.Y^S / sc^8\ B\ InS\ w^a$
 f70 $sc.Y_1 / y\ In49\ v\ f.Y^S$
 f71 $sc.Y_1 / y\ In49\ v\ f.Y^S ; e$
 f72 $sc.Y_1 / y\ rein.sc^{8-4}.Y^S\ \&\ y\ f:=$
 f73 $sc.Y_1 / y\ v\ \phi\ \&\ Y^+ / y\ v\ \delta ; bw^{VA} / L^2\ 1$
 f74 $sc.Y_1 / y\ w.Y^S\ \&\ y\ f:=$
 f75 $sc.Y_1 / y\ w^{m258-18}\ t^2\ v\ f\ \phi\ \&\ Y^+ / y\ w^{m258-18}\ t^2\ v\ f\ \delta$
 f76 $sc.Y_1 / y.Y^S\ \&\ y\ f:=$
 f77 $sc.Y_1 / y.Y^S\ \&\ y\ f:= ; cn\ bw ; (e)$
 f78 $sc.Y_1 / y^2\ v\ f.Y^S\ \&\ y\ w\ f.=$
 f79 $sc.Y_1 / y^2\ w^a\ ct^6\ f.Y^S$

- f80 $sc.Y^1 / y^2 w^a$ ct f.Y^S ♂ & $sc.Y^1 / y^2 X^+$. $sc^8 w^a$ InS B ♀ (tandem X.X giving rings)
- f81 $y^3.Y^1 / oc f.Y^S$ & $y^3.Y^1 / y f:=$
- f82 ("plond") $y^3.Y^1 / y^2 oc lz.Y^S$ ♂ & $y^3.Y^1 / y ac sc pn w rb cm ct^6 sn^3$
 $oc ras^2 v m g^2 f car / sc^{S1} B In49 lz^S$ ♀
- f83 $y^3.Y^1 / sc w oc f.Y^S$ & $y f:=$
- f84 $y^3.Y^1 / sc w sn^5 f.Y^S$ & $y f:=$
- f85 $y^3.Y^1 / sc^{V1-} oc lz^3.Y^S$ & $y f:=$
- f86 $y^3.Y^1 / sc^{V1-} w.Y^S$ & $y f:=$
- f87 $y^3.Y^1 / w^e oc lz^3.Y^S$ & $y f:=$
- f88 $y^3.Y^1 / X.Y^S$ & $y f:=$
- f89 $y^3.Y^1 / y.Y^S$ & $y f:=$
- f90 $y^3.Y^1 / y oc lz.Y^S$ & $y f:=$
- f91 $y^3.Y^1 / y w oc lz^5.Y^S$ & $y f:=$
- f92 $y^3.Y^1 / y^2 w.Y^S$ & $y f:=$
- f93 $y^3.Y^1 / y^2 w^a sn^5 f.Y^S$ & $y f:=$
- f94 $Y^S / g^2 B.Y^1$ & $y f:=$ (Stern)
- f95 $Y^S / y ct^6 f.Y^1$ & $y f:=$
- f96 $Y^S / y v f.Y^1$ & $f:=$
- f97 $Y^S.Y^S_{#2} / y v f.Y^1$ & $y f:=$
- f98 $sc^{V1}.Y^S / y v f bb.Y^1$ & $y f:=$
- f99 $sc^{V1}.Y^S / y In49 v B.Y^1$ & $y f:=$
- f100 $sc^{V1}.Y^S / y In49 v f.Y^1$ & $y f:=$
- f101 $sc^{V1}.Y^S / y In49 v.Y^1$ & $y f:=$
- f102 TY2 (B.N.) / $ab^2 bw sp$ ♂ & $ab^2 bw sp$ ♀
- f103 TY3 1 (II4Aa2) / ru h D CXF ca
- f104 TY4 & $y f:=$ (Edmondson)

g. Chromosome 2

- g1 $ab^2 / S^2 Ins(CyL,CyR)$
- g2 $ab^2 bw sp / S^2 Cy cn^2 L^4 sp^2$ (iso 2, Apr. '49)
- g3 $ab^2 bw^{5-} mr / S^2 Cy cn^2 L^4 sp^2$
- g4 $ab^2 bw^{VA} / Cy Bl cn^2 L^4 sp^2$
- g5 $ab^2 cn bw^{5-} / Cy cn^2 L^4 sp^2$
- g6 $ab^2 cn InNSR mr / Cy Bl cn^2 L^4 sp^2$
- g7 $ab^2 cn^4 Pm^1 / Cy Bl cn^2 L^4 sp^2$
- g8 $ab^2 InNSR mr / Cy Bl cn^2 L^4 sp^2$
- g9 $ab^2 mr sp / Cy Bl cn^2 L^4 sp^2$
- g10 al b c sp
- g11 al b cn sp
- g12 ("albasp") al b pr cn vg a sp / $Cy cn^2 L^4 sp^2$
- g13 $al^2 Cy Bl cn^2 L^4 bw sp / InsNS px sp$
- g14 $al^2 Cy Bl lt^3 cn^2 L^4 sp^2 / InsNS mr$
- g15 $al^2 Cy, InL lt^3 / b pr Bl lt^3 InCyR L^4 sp^2$
- g16 $ap^4 / Rvd, In^{2LR}$
- g17 $ap^4 cn / S^2 Cy L^4 sp^2$
- g18 ("apl") al dp b pr c px sp / Cy
- g19 ast ho
- g20 b InsNSL&R mr / $ab^2 InCyR L^4 sp^2$
- g21 b pr
- g22 b pr Bl tk / $S^2 Cy cn^2 L^4 sp^2$
- g23 b pr c px sp
- g24 b pr InCyR
- g25 Bl $bw^{VA} / Cy, InL L^2$
- g26 Bl $L^2 / Cy, Ins$
- g27 Bl $stw^3 / IndpT23 b$
- g28 bur cn

- g29 bw (iso 2,3)
 g30 bw⁵⁻ / Cy cn² L⁴ sp²
 g31 bw^D
 g32 c (iso 2,3)
 g33 c bw
 g34 eg c / U,In
 g35 cn (iso 2)
 g36 cn bw
 g37 cn bw sp
 g38 cn ms2.1 rm / Cy cn² L⁴ sp²
 g39 cn ms rm sp / Cy Bl cn² L⁴ sp² (iso)
 g40 cn² InCyR eg sp² / IndpT23 b
 g41 cn² InCyR eg sp² / dp b L⁴ Pm¹
 g42 cn² InCyR eg sp² / InsNS px sp
 g43 cn³ eg bw⁵⁻ mr / Cy cn² L⁴ sp²
 g44 crs / al² Cy Bl cn² L⁴ sp² (iso 2)
 g45 Cy dp² / fr
 g46 dp cn bw
 g47 dp b cn c a mr / Cy,Ins
 g48 dp b cn c sp / al² Cy Bl cn² L⁴ sp²
 g49 dp b L⁴ Pm¹ / dpTh Cy pr
 g50 dp b L⁴ Pm¹ / IndpT23 b
 g51 dp bw⁵⁻ mr / S² dpTh Cy cn² L⁴ sp²
 g52 dp⁰²
 g53 dp⁰³ ta sp / Cy Bl cn² L⁴ sp² (iso 2)
 g54 dpT / al² Cy cn² L⁴ sp²
 g55 dpT ab² pr Bl rn InNSR mr / al² Cy cn² L⁴ sp²
 g56 dpT Sp / S² ls Cy,InL
 g57 dpT Sp ab² cn bw sp / S² ls Cy,InsL&R cn² bw sp
 g58 dpT sp cn / S² Cy,InL cn
 g59 dpT Sp cn bw / S² Cy cn bw
 g60 dpT Sp (ls⁺) cn bw sp / S² (ls⁺) Cy,InL cn bw sp
 g61 dpT sp cn InNSR mr / S² ls Cy Bl cn² L⁴ bw sp²
 g62 dpT Sp ls cn bw sp / S² cn² Ins,Cy
 g63 dpT Sp ls ta cn ms crs / InsNSL&R px sp
 g64 dpT Sp ls ta cn ms crs / S² Cy lt³ pr Bl cn² L⁴ sp²
 g65 dpTh Cy Bl cn² L⁴ sp² / InNSL InNSR px sp
 g66 dp^{tx} b / Cy,Ins
 g67 dp^{V2}
 g68 Dt bw
 g69 fes ab² pr(?) / al² InCyL InCyR stl
 g70 fes Alu lt / al² Cy lt³ (L⁴) sp²
 g71 fes IndpT23 b sp / al² Cy cn² L⁴ sp²
 g72 fes pr rn / al² Cy cn² L⁴ sp²
 g73 Gla / pi
 g74 Gla / S² Cy cn² L⁴ bw sp
 g75 Hx (Hexaptera)
 g76 InNSL InNSR / al² Cy,InL lt³ L²
 g77 InsL&R 1 cn² / dp b L⁴ Pm
 g78 j-1 ab² NSR mr / Cy cn² L⁴ sp²
 g79 M1² / Cy cn² L⁴ sp²
 g80 Mz / In2L
 g81 mi sp / Pm²
 g82 rn / Cy cn² sp²
 g83 mn / Cy cn² L⁴ sp²
 g84 ab² ta ms2.1 crs / Cy Bl cn² L⁴ sp²
 g85 px bw mr sp / ds^{33K} Pm
 g86 Px²⁻ / Cy cn² L⁴ sp²

- g87 rk cn bw (iso 2)
 g88 rn / Cy Bl cn² L⁴ sp²
 g89 rn In2RM / Cy cn² sp²
 g90 S dp Sp ab² ta cn c mr / dpTh Cy Bl cn² L⁴ sp²
 g91 S dp^T / al² Cy cn L⁴ sp²
 g92 S Sp ab² bw⁵⁻ / al² Cy cn² L⁴ sp²
 g93 S Sp ab² ap⁴ NSR px sp / al² Cy Bl cn² L⁴ sp²
 g94 S Sp ab² pr Bl rn T23 / al² Cy cn² (L⁴) sp²
 g95 S Sp Bl bw^D / Cy cn², InsCy
 g96 S Sp Bl L^{rm} bw^D / Cy, Ins cn²
 g97 S Sp Bl L² / Cy cn² sp
 g98 S Sp Bl L² Px / dp b L⁴ Pm¹
 g99 S Sp Bl Pfd bw^D / Cy, Ins
 gl00 S Sp(?) Bl vg^D bw^D / dpTh Cy, Ins pr cn²
 gl01 S Sp (ls?) cn / dpTh Cy cn
 gl02 S Sp cn bw / dpTh Cy cn bw
 gl03 S Sp (ls⁺?) cn bw sp / dpTh Cy, InL cn bw sp
 gl04 S Sp crs / al² dpTh Cy Bl L⁴ sp²
 gl05 S Sp InNSR mr / dpTh Cy Bl cn² L⁴ sp²
 gl06 S Sp L^{rm} Pin / Cy cn²
 gl07 S Sp ta cn ms2.1 crs / dpTh Cy Bl cn² L⁴ sp²
 gl08 S² Cy Bl cn² L⁴ bw sp / InNSL InNSR px sp
 gl09 S² Cy cn² InCyR sp² / InNSL InNSR px sp
 gl10 S² Cy cn² L⁴ sp² / InNSL InNSR px sp
 gl11 S² dpTh Cy Bl cn² L⁴ bw sp / InNSL InNSR px sp
 gl12 S² ls Cy Bl cn² L⁴ sp² / InNSL&R px sp
 gl13 sm px pd / al² Cy cn² L⁴ sp²
 gl14 Sp bur cn InNSR px sp / Cy Bl cn² L⁴ bw sp
 gl15 stw³
 gl16 ta cn bw / al² Cy Bl cn² L⁴ sp² (iso 2)
 gl17 ta cn bw sp / Cy Bl cn² L⁴ sp² (iso 2)
 gl18 tu^{48j}
 gl19 ("twelvepl") al dp b pr cn vg c a px bw mr sp / al² Cy pr Bl cn² L⁴ sp²
 gl20 Uf
 gl21 vg (iso 2,3)
 gl22 vg bw
 gl23 vg^{-D} sp² / Cy cn² L⁴ sp²

h. Chromosome 3 (containing genes of X or 2 also in a few cases)

- h1 bwl (brown-like in chrom.3)
 h2 bwl Sb H / InLP gm
 h3 C3G #2 (Gowen)
 h4 C3G (Pasadena)
 h5 ca^{572j} IIIIa3 / Me, Ins ri Sb¹
 h6 ca^{708k} s-1 / Me, Ins ri Sb¹
 h7 Cor / ru h D InsCXF
 h8 cv-c sbd²
 h9 D tra / InLP Dfd InRP ca
 h10 D³ H / InsP
 h11 D³ Sb / InLP Dfd InRP ca
 h12 e pi / ru h D InsCXF
 h13 ell
 h14 Gl bx^D / InsLVM
 h15 glass-like
 h16 h th st W 1347(+) cu sr e^s / ru h D CXF ca
 h17 h ri
 h18 h ri e^s
 h19 in

h20 (Cy) 1347⁽⁺⁾
 h21 1347 / ru h D CXF ca
 h22 (Cy / Pm) 1347 Sb In3R(Mo) sr / ru h D InsCXF ca
 h23 M3w / InRC e 13e
 h24 M3y G1 / InsLVM
 h25 Me, InL bx^D / ru h D InsCXF Sb
 h26 Me, InL InRC e 13e / ru h D Sb e^s InCXF
 h27 Me, InL InRC e 13e / ru h D Sb InsCXF
 h28 Me, InL Sb / ru h D InsCXF
 h29 Me, Ins ri Sb¹ / ru h D InsCXF ca
 h30 R Ly / InLP gm
 h31 ri e
 h32 ru h
 h33 ri p^p
 h34 ri p^p Ina (/ru h D InsCXF ca)
 h35 ri p^p Inc 1 / ru h D InsCXF ca
 h36 ri p^p Ind 1 / ru h D InsCXF ca
 h37 ri p^p sep, Inp
 h38 ri sbd e²
 h39 ru D³ st bx^D e^s(?) / Me, Ins ri Sb¹
 h40 ru h D³ ri InC e 13e / Me, Ins ri Sb¹
 h41 ru h e^s
 h42 ru h ri
 h43 ru h ri p^p Inb (/ru h D InsCXF ca)
 h44 ru h ri p^p Ine(3R) / ri p^p sep, Inp
 h45 ("rucuca") ru h th st cu sr e^s ca
 h46 ("ruPrica") ru h th st cu sr e^s Pr ca / Me, T23
 h47 ("rupes") ru h th st p^p cu sr e^s
 h48 ru st C3G e^s (iso 3)
 h49 ru st C3G sr e^s
 h50 Sb bx^D / Xa, T23
 h51 sbd ell
 h52 se h
 h53 se rt² th / Me, InL
 h54 (ru h?) T3L.4L; 4R.3R(e^s?) / 1 InPL Dfd InPR 1
 (separated arms of 3 (Dubinin 2))
 h55 se ss
 h56 ss
 h57 ss e
 h58 st
 h59 st C3G (iso 2,3)
 h60 (b sp/) ; st C3G sr e^s (iso 3 \$1 Apr. '49)
 h61 st C3G sr e^s (iso 3 \$2 Apr. '49)
 h62 st Sb^r e^s ro ca
 h63 (sp²;) suHw² bx bxd / Me, Ins ri Sb¹
 h64 th st W 1347 cu sr e^s / ru h D InsCXF ca
 h65 th st W p^p
 h66 ("threepl") ru h st p^p ss e^s
 h67 tra / Me, T23
 h68 ru tra p / ru h D CXF e
 h69 ve h th
 h70 ve R D³ bx^D (e^s?) Pr ca / InPL Dfd InPR ca
 h71 ve R D³ bx^D (e^s?) Pr ca / Me, Ins ri Sb¹
 h72 ve R D³ Sb^{Sp1} Bd^G / InsP
 h73 W Sb / InsCX
 h74 Xa, T23 ca / e^s cd ro cmp ca

1. Chromosome 4

- 11 bt^D / ci^D
 12 Cat / ci^D
 13 Cat / gvl ey^R
 14 ci ey^R
 15 ey^D / ci^D
 16 4-sim / ci^D
 17 gvl ey^R
 18 M(4)/sv/sv
 19 TY4 (Edmondson) / 4-sim ♂ & 4-sim ♀

j. Multiple Chromosomes

X2 (j1-j14)

- j1 Bld,T12 InCyR / sc² pn ; II⁺
 j2 ("scute twelvepl") y sc ; al dp sc¹⁹ⁱ b pr cn vg c a px mr bw sp /
 Cy pr Bl cn² L⁴ sp²
 j3 ("scute twelvepl X.X") y sc⁵ & y f:= ; al dp sc¹⁹ⁱ b pr cn vg c a px
 mr bw sp / Cy pr Bl cn² L⁴ sp²
 j4 sc w B^{S2}.Y^S & y f:= (B^{S2} Del.-Inser. into 2)
 j5 sc⁸ B ; bw
 j6 sc⁸ f In49 v ; bw^{VA} / L² 1 (iso Y,X,2)
 j7 y f:= ; bw^{VA} / L² 1
 j8 y f:= ; cn bw
 j9 y f:= ; Cy,Ins / Gla
 j10 y v ; bw
 j11 y v ; bw^{VA} / L² 1
 j12 y v f^{X:f+1} ; bw^{VA} / L² 1
 j13 y² t² ; cn bw
 j14 y^{Si} sc⁸ B f In49 v ; bw^{VA} / L²

X,3 (j15-17)

- j15 sn³ ; Mw / 1 InLP InRP 1
 j16 w^a ♂ & y v f:= ♀ ; tra/D InCXF
 j17 y² ; st C3G sr e^S
 j18 (X,4) y.= ; ci ey
 j19 (Y,2) TY2G / b pr (tk)
 j20 (Y,3) TY3(II4Aa³) 1 / ru h D InsCXF ca (TY3 in ♀ & ♂)
 j21 (Y,4) TY,4 / ci ey ♂ & ci ey ♀

2,3 (j22-j99)

- j22 ("apl") "apl" / Cy sp ; ru h InsCXF ca / Sb InRMO
 j23 bw ; e
 j24 bw ; ru h D³ ri InC e 13e / Me,Ins ri Sb¹
 j25 bw ; ru h ri
 j26 bw ; ss
 j27 bw sp ; ri e
 j28 bw sp ; ru h D¹ ri InC e 13e / Me,Ins ri Sb¹
 j29 bw sp ; ru h D³ ri InC e 13e / Me,Ins ri Sb¹
 j30 c ; e
 j31 c ; st C3G (iso 2,3)
 j32 c fs / Cy ; st C3G (iso 2,3)
 j33 c ms / Pm ; st C3G (iso 2,3)
 j34 cn bw ; h ri
 j35 cn bw ; h ri e^S
 j36 cn bw ; ri e
 j37 cn bw ; ru h
 j38 cn bw ; ru h D³ ri InC e 13e / Me,Ins ri Sb¹
 j39 cn bw ; ru h e^S
 j40 cn bw ; ru h ri

j41 cn bw ; ru h ri e^s
j42 cn bw ; ru h th ri e^s
j43 cn crs / Cy Bl cn² L⁴ sp² ; e^s (iso)
j44 cn crs / Cy Bl cn² L⁴ sp² ; ri e (iso)
j45 cn crs / Cy Bl cn² L⁴ sp² ; ve (iso)
j46 cn ms2.1 rm sp / Cy Bl cn² L⁴ sp² ; ru h D InsCXF / ve th 1
j47 Cy / 1 ; C3G st ca
j48 Cy / 1 ; ru h D InsCXF ca / InLP Dfd InRP ca
j49 Cy / Pm ; st C3G (iso X,2,3)
j50 dp b bw⁵ mr / Cy cn² L⁴ sp² ; Dl H e Pi
j51 dp³ cn bw ; ru h D³ ri In3RC e 13e / Me,Ins ri Sb¹
j52 dp^T Sp ls ta cn ms crs / S² Cy Bl cn² L⁴ sp² ; e^s
j53 dp^T Sp ls ta cn ms crs / S² Cy Bl cn² L⁴ sp² ; h ri e^s
j54 dp^V ; vo³
j55 ("iser") S Sp (crs) / Cy,InL lt³ ; Me,Ins / Bd^G
j56 mn Pin / Cy cn² L⁴ sp² ; st ca CG
j57 ms / Cy Bl cn² L⁴ sp² ; h (iso)
j58 ms sp / Cy Bl cn² L⁴ sp² ; h (iso) (from \$10-2)
j59 ms sp / Cy Bl cn² L⁴ sp² ; h (iso) (from \$10-7a)
j60 ms sp / Cy Bl cn² L⁴ sp² ; h ri (iso Aug. 1952)
j61 ms sp / Cy Bl cn² L⁴ sp² ; ri (iso)
j62 ms sp / Cy Bl cn² L⁴ sp² ; ri^M (iso #1)
j63 ms sp / Cy Bl cn² L⁴ sp² ; ri^M (iso #2)
j64 ms sp / Cy Bl cn² L⁴ sp² ; ru h ri
j65 ms sp / Cy Bl cn² L⁴ sp² ; ru ri^M (iso)
j66 ("Pale e") dp b cn (c?) P⁻ / Cy cn² ; e Pi / e Pi
j67 ("Pale H") dp b cn (c?) P⁻ / Cy cn² ; Dl H e Pi / In3R 1
j68 ("Pale Indp") IndpT23 b P⁻.Dl H e Pi / dp b Pm¹ ; Sb In3R
j69 Pm / ap⁴ ; ru h D CXF ca / Sb InMo
j70 rn T23 / Cy sp²
j71 ("sifter") S Sp P⁻ T23,InsCXF / al² Cy cn² L⁴ sp² ; Dl H e Pi
j72 S Sp (crs?) / Cy,InL lt³ ; D³ tra / Me,Ins
j73 S Sp bw / dpTh Cy bw ; e
j74 S Sp (ls?) cn / dpTh Cy cn ; e
j75 S Sp cn / dpTh Cy cn ; h ri
j76 S Sp cn / dpTh Cy cn ; h ri e^s
j77 S Sp cn / dpTh Cy cn ; Me,InL InC e 13e / ru h D Sb InCXF
j78 S Sp cn / dpTh Cy cn ; ri e
j79 ("CySMe") S Sp cn / dpTh Cy cn ; ru h D³ ri InC e 13e / Me ri Sb¹
j80 S Sp (ls?) cn / dpTh Cy cn ; ru h ell
j81 S Sp cn / dpTh Cy cn ; ru h ri
j82 S Sp cn bw / dpTh Cy cn bw ; h ri e^s
j83 S Sp cn bw / Th Cy cn bw ; ru h D³ ri InC e 13e / Me,Ins ri Sb¹
j84 S² ls⁺ Cy cn / dp^T Sp cn ; e
j85 S² ls⁺ Cy cn / dp^T Sp cn ; ri e
j86 S² Cy cn / dp^T Sp cn ; ru h D³ ri InC e 13e / Me,Ins ri Sb¹
j89 sp ; ru h D Sb InCXF / Me,InL InC e 13e
j90 ta / Cy Bl cn² L⁴ sp² ; h ri (iso)
j91 ta / Cy Bl cn² L⁴ sp² ; ri e^s (iso)
j92 ta / Cv Bl cn² L⁴ sp² ; ru (iso #1)
j93 ta / Cy Bl cn² L⁴ sp² ; ru (iso #2)
j94 ta / Cy Bl cn² L⁴ sp² ; ru ri (iso #1)
j95 ta / Cy Bl cn² L⁴ sp² ; ru ri (iso #2)
j96 ta sp / Cy Bl cn² L⁴ sp² ; jv (iso)
j97 ta sp / Cy Bl cn² L⁴ sp² ; ru (iso)
j98 ta sp / Cy Bl cn² L⁴ sp² ; th (iso)
j99 vg ; ell

j100 (2,4) "apl" 1 / Cy cn² sp² ; four-sim / ci ey
 j101 (2,4) bw ; ci^D / IV-sim
 j102 (X,Y,2) Y:bw⁺ / y v ♂ & sc⁸.Y / y v ♀ ; S Sp cn bw / dpTh Cy cn bw
 X,2,3 (j103-j110)
 j103 ("eosin-sifter") w^e ; P⁻ T23.InsCXF / Cy L⁴ sp² ; D1 H e Pⁱ
 j104 ("MI") y^{Si} sc⁸ Ins y^{3P} ; al² Cy lt³ sp² / dp b Pm¹ ; ru h D InsCXF
 ca / Sb In3R
 j105 ("Pale") w^e ; P⁻ / Cy ; Pⁱ / Pⁱ
 j106 ("scar") sc t² v f car ; Cy / bw ; ey
 j107 y.= ; cn bw ; e
 j108 y In49 v ; bw ; e
 j109 y sc^{S1} f In49 v sc⁸ ; bw ; e
 j110 y^{Si} sc⁸ B f In49 v ; bw ; e
 j111 (Y,2,3) Y:bw⁺ ; Cy,InL rn ; InsCXF / IndpT23 b
 j112 (Y,2,3) Y:bw⁺ ; Me,T23 / dpTh Cy cn² bw sp
 j113 (2,3,4) Cy / bw ; e ; ci^D / IV-sim
 X,Y,2,3 (j114-j117)
 j114 sc⁸.Y / y sc^{S1} f In49 v sc⁸ ; Cy / S Sp ; st C3G
 j115 ("y qs cn bw e") Y^{lc} / y qs.Y^S / y sc^{S1} B f In49 v sc⁸ ; cn bw ; e
 j116 ("y cn bw e") Y^{lc} / y.Y^S ; cn bw ; e
 j117 sc^{V1}.Y^S / y In49 v f.Y^l ; bw ; e
 j118 (X,2,3,4) y f:= ; bw ; e ; ci ey^R

k. Virus

kl e ; CO₂-sensitive

AMHERST, MASSACHUSETTS: AMHERST COLLEGEWild Stocks

- 1 Mass. 1952 (in a population cage, derived from 50 wild-population females)
- 2 Oregon-RI (inbred each generation; 97 generations on 52j31)
- 3 Oregon-RP (in a population cage after 95 generations of inbreeding)

Mutant Stocks

57 common stocks are maintained.

BALTIMORE, MARYLAND: JOHNS HOPKINS UNIVERSITYWild Stocks

11-1 St. Louis - 1
 11-2 St. Louis - 2
 11-3 St. Louis - 7 (bw)

Chromosome 4

43 Ce/ci ey^R & ci ey^R
 44 R(+)15/ci ey^R
 45 R(ci)24/ci ey^R

Chromosome 1

8 lz^{50d}/y

Multichromosomal

47 Su-er bw; st er
 48 b Su-er⁺ bw; st er
 52b Ins(1)sc^{S1} B sc⁸ w^a; T(2,3)Xa
 53a Cy sp²/Pm ds^{33k} dp; H/Sb-C
 53b dp; e
 53c Cy pr cn/Pm ds^{33k} dp; H/Sb-C
 54 pr cn; by

Chromosome 2

17 ap⁴⁹/Cy
 19a M(2)8^d.1/Cy
 20 net S ho/Cy E-S
 22 rn/Cy

Chromosome 3

38 p ss bx/T(2,3)Xa

Duplication

10 Dp(sc^{S1})y w f

Inversions

12a car $\frac{1}{1}(C1+1)/Ins(1)sc^{S1} B sc^8 wa$
 12b car $\frac{1}{1}(A2+2)/Ins(1)sc^{S1} B sc^8 wa$
 12c car $\frac{1}{1}(B2+6)/Ins(1)sc^{S1} B sc^8 wa$
 12d car $\frac{1}{1}(A3+3)/Ins(1)sc^{S1} B sc^8 wa$
 12e car $\frac{1}{1}(B3+1)/Ins(1)sc^{S1} B sc^8 wa$
 12g car $\frac{1}{1}(B5+2)/Ins(1)sc^{S1} B sc^8 wa$
 13 $Ins(1)sc^{S1} B sc^8 wa$
 27 $Ins(2R)bw^A/Cy$
 28 $Ins(2L,2R)Cy bw^{V2}/al dp b pr cn c$
 px sp
 31 $Ins(2LR)bw^{V29}/Cy$
 32 $Ins(2LR)bw^{V30kl}/Cy$

33 $Ins(2R)bw^{V30kl}/Cy$
 34 $Ins(2L,2R)Cy bw^{V34}/b vg$
 35 $Ins(2)b bw^{VDel}/b lt \underline{1} cn mi sp$
 36b $Ins(2)bw^{V13}/Cy$
 42a $Ins(3R)Gl \& st p^p cu sr e^s$
 57 $v; Ins(2R)bw^{V2}/+ \& v$

Translocations

63 $T(2;3)bw^{V5} st \& st$
 64 $T(2;3)bw^{V5} st/T(2;3)p^{Gr} st$
 71 $T(2;3)rn/Cy sp$
 88a $T(2;3)G^5 Sp L^{34}/pr cn; by$
 88c $T(2;3)G^5 Sp pr cn \& pr cn; by$
 72 $T(2;3;4)bw^{V30kl8}(Ins 2LR)/Cy$

Berkeley, California: University of California(1) Department of ZoologyWild Stocks

1 Canton-S (isogenic)
 2 Florida-10 (isc '39;
 contains $Ins(3R)Payne$)
 4 Oregon-R (contains $Df(2R)c$)
 5 +3
 6 Florida-26 (inbred 24
 generations)

Chromosome 1

100 B
 101 Bx
 102 $br w^e ec rb t^4/Ins(1)sc^8 dl-49,$
 $y^{3ld} wa lz^s B$
 103 car bb (with Y)
 104 fa
 105 $kz g^2 B/y$
 107 $Df(1)N^8/Ins dl-49 m^2 g^4$
 109 sd mc
 113 v car
 117 w
 120 $w^e bb/C1B$ (with Y)
 121 $w^e bb^1/C1B$ (with Y)
 123 y
 124 $y ac/y$
 125 $y ac v$
 126 $y ac sn^3$
 127 $y ac sc^8 wa$
 128 $y ac w^{co} sn^2/y f:=$
 129 $y ec v wy^2$
 130 $y Hw dl-49 v^o m^2 f/C1B^{36d}$
 131 $y sc m f^5$
 132 $y sn^3$
 133 y w
 134 $Ins(1)y Ins(1)w$
 135 $y w spl sn^3/y f:=$
 136 $y wa ec cv ct c f/C1B$

136G $y^2 cv v f$
 137 $y^2 dvr^2 v f car/C1B$
 140 $X^{c2} t/y f:=$
 141 $X^{c2} sn^3$
 145 Muller-5
 146 $X \cdot Y, y B/y^2 su-w^a w^e bb$

Chromosome 2

201 a px sp
 203 $al b c sp/Cy al^2 lt^3 L^4 sp^2$
 206 b cn c bw
 208 b pr c
 210 $B1 L^2/Cy sp^2$
 212 bw
 216 c
 217 cg c/U
 218 cl
 220 esc/B1
 221 el
 222 $l(2)gl cn bw/Cy cn bw$
 226 L^4
 226A L^4 (with \pm modifiers for eye size)
 228 pr en
 230 $tr/\underline{1} (In)$
 232 vg
 233 vg^{ni}
 234 vg^{no}
 235 $vg^{nw}/sm Cy$

Chromosome 3

326G Bd^G
 300 cv-c sbd²
 301 cu
 305 $e^s cand/Sb(3R)Ce \underline{1}(3)e$
 308 $Gl Sb/LVM$
 310 h (iso)
 311 h th st cu sr e^s ca
 312 $Ly/D3$

313 Pc/T(2;3)Me
 327G ro Bd ca/In(3R)C 1(3)a
 316 ru h st p^p ss e^s
 328G ru h c cd ca
 320 se h
 321 se ss
 323 ss
 324 ss^a

Chromosome 4

400 ar/ey^D
 401 bt
 402 bt^D/ci^D
 405 ci^W (iso)
 407 ci ey
 408 ci ey^R
 409 ci ey^R; y
 410 ci sv^{na}
 411 ci^D/Cat
 412 ey²
 413 ey^D/Scn
 414 ey^D/sv^{dl}
 415 spa

Multichromosomal

501 C1B; Cy/Pm ds^{33k}; H/In(3R)Mo Sb sr
 505 y; bw; e⁴ ro; svⁿ
 506G y; bw; e⁴ ro; ey²
 512 y ac sn³; en
 516 w; vg
 517 bw; e
 519 vg; se
 521 se h; ci ey^R
 522 Mal-pr

Deficiencies

107 Df(1)N⁸/In dl-49 m² g⁴
 600G Df(1)y-svr/Dp(1;f)101

Translocations

601 B bb bb¹²
 603 T(1;2)Bld/C1B
 605 g² B X.Y'/y; Y"
 313 T(2;3)Me/Pc
 607 T(2;3)Xa/Sb bx^D

Suppressors

650 dxst Su-dx
 652 Su-dx dx
 656 su-t (t)

(2) Department of Genetics

Some wild-type stocks maintained by brother-sister mating.

CHAPEL HILL, NORTH CAROLINA: UNIVERSITY OF NORTH CAROLINA

Note: Only special stocks, often unobtainable elsewhere, are listed.

3 Oregon-R isogenic	41 Gl bx ^D /LVM
7 f ⁵ su-f	42 Gl Sb/LVM
19 Cy lt cn ² L ⁴ /S Pfd	43 Me cu sr e ^s ca/rucua
24 l(2)gl ³ Cy cn bw sp/cn bw sp	45 M(3)y bx ^D /LVM
27 lt cn	46 M(3)y Gl/LVM
35 S ^W Cy pr/Pfd L ²	47 M(3)y Sb/LVM

CHICAGO, ILLINOIS: CHICAGO MEDICAL SCHOOL

Note: Stock list unchanged. See DIS-25, p. 40.

EVANSTON, ILLINOIS: NORTHWESTERN UNIVERSITY

Note: We carry more than 100 mutant stocks, obtained from various laboratories and still maintained by them. Only those mutant stocks peculiar to our laboratory are listed below. We also carry numerous sex-linked lethals and Minute mutants derived by X-ray and chemical treatments.

Wild Stocks

a1 Oregon-R	a5 Woodstock, Ill. (1951)
a2 Wilmette, Ill. (1950)	a6 Florida-19
a3 La Crosse, Wis. (1949)	a7 Tuscaloosa
a4 Evanston, Ill. (1949)	

<u>Chromosome 1 (X)</u>	<u>Chromosome 2</u>	<u>Multichromosomal</u>
b44 lz ^{50e} /y	c5 bw ^D nub	f1 sc pn; px; h
b17 f ^{51b}	c17 nub	f4 y; c; th
b25 di	c18 nub b pr	f5 y; pr
b63 w ^{51f}	c30 ex ^{48k}	f8 y; bw; e
b64 r ^{50e}	c31 L ^{49a}	
b65 fw ^{51h}		
b66 ct ^{50e}	<u>Chromosome 3</u>	
b67 lz ^{52e} /+	d17 R ^{51b}	
b68 y ^{49g} -	d26 er-w	
b69 agl	d27 spr	

KINGSTON, RHODE ISLAND: UNIVERSITY OF RHODE ISLAND

Wild Stocks

Burlington, Vt.
Kingston, R.I.

Chromosome 2

bw mt^A vg (high-tumor stock
derived from bw tu)

KNOXVILLE, TENNESSEE: THE UNIVERSITY OF TENNESSEE

Wild Stocks

Big Ridge, Tennessee (1948)
Bikini Atoll (1947)
Gatlinburg, Tennessee (1947)
Great Smoky Mountains (1950-52), strains from various altitudes

Multichromosomal

cn; st

LOS ANGELES, CALIFORNIA: UNIVERSITY OF CALIFORNIA, DEPARTMENT OF ZOOLOGY

Note: 65 common stocks are carried in addition to the special stocks listed below.

Deficiencies

66 Df(2)bw⁵ sp/Xa
67 Df(2)vg^B/Cy L⁴ sp²

Inversions

68 In(1)hi 1/dl-49, y Hw m² g⁴
69 y^{3ld} In(1)sc⁸, In(1)dl-49
70 In(1)sc²⁶⁰⁻²², In(1)dl-49, v, In(1)B^{M1}
71 In(2)bw^{VI}/Cy bw sp²
72 In(2LR)IIA/Cy sp²
73 In(2LR)IIBI/Cy sp²
74 In(2LR)IICA/Cy sp²
75 In(2LR)IICQ/Cy sp²
76 In(2LR)IICR/Cy sp²
77 In(2LR)IICX/Cy sp²
78 In(2LR)IIDD/Cy sp²
79 In(2LR)IIDH/Cy sp²
80 In(2LR)IIP/Cy sp²
81 In(2LR)IIV/Cy sp²
82 In(2LR)40d/Cy sp²

Translocations

83 T(Y;2)bw^{D4} c bw^{D4}/In(2LR)40d
84 T(Y;2)IIAU/Cy sp²
85 T(2;3)bw^{D11} c bw^{D11}/In(2LR)40d
86 T(2;3)IIAH/Cy sp²
87 T(2;3)IIAV/Cy sp²
88 T(2;3)IICK/Cy sp²
89 T(2;3)IICS/Cy sp²
90 T(2;3)IIDA/Cy sp²
91 T(2;3)IIDG/Cy sp²
92 T(2;3)IIDJ/Cy sp²
93 T(2;3)IIG/Cy sp²
94 T(2;3)Hin 102/Cy sp²; Dcx^F
95 T(2;3)Hin 103/vg; Hn
96 T(2;3)Hin 111/Cy sp²; Dcx^F
97 T(2;3)Hin 114/Cy sp²; Dcx^F
98 T(2;3)Hin 120/Cy sp²; Dcx^F

Transposition

99 Tp(1)hi 11/lz

Lethals

100-102	<u>1</u> (2)Fla. '42-2-4/Cy	116-141	<u>1</u> (2)FW18-43/Cy
103	<u>1</u> 1076/B1	142-166	<u>1</u> (2)WO44-68/Cy
104	<u>1</u> 1323/B1	167-235	<u>1</u> (2)SA69,71-138/Cy
105	<u>1</u> (2)M7/B1	236-266	<u>1</u> (2)NAL39-169/Cy
106	<u>1</u> (2)PW8/Cy L ⁴	267-332	<u>1</u> (2)BV170-189, 191-197, 199-237/Cy
107	<u>1</u> (2)Fla. '51-9/Cy	333	<u>1</u> (2)BV238/B1
108-115	<u>1</u> (2)Mass.-11-17/Cy	334	<u>1</u> (2)SA239/Cy
		335	<u>1</u> (2)CP241/B1

NEW ORLEANS, LOUISIANA: LOUISIANA STATE UNIVERSITY

Note: Only tumor stocks are listed here.

1	<u>1</u> (1)7/dl-49 y Hw m ² g ⁴	12	aa tu ^{36e}
2	<u>1</u> (1)7e <u>1</u> (1)7/dl-49 y Hw	13	se e ¹¹ tu ^{49h}
3	lz ³ f	14	tu ^{wps}
4	tu ^h	15	bw st tu
5	w ^e sn B1-t/sc ^{S1} (InS) w ^a ct sc ⁸	16	ed Su ² -dx
6	y <u>1</u> (1)7/dl-49 y Hw m ² g ⁴	17	f ²⁵⁷ -19 B/In AM
7	bw tu	18	w ^{bf} f ⁵
8	Hx	19	tu ^{50d}
9	st sr e ^s ro ca; tu ^{36a}	20	vg mt ^A bw
10	tu ^g	21	y B ²⁶³ -43 (homozygous)
11	tu ^{48j}	22	vg bw tu

PHILADELPHIA, PENNSYLVANIA: INSTITUTE FOR CANCER RESEARCH
AND LANKENAU HOSPITAL RESEARCH INSTITUTE

Note: In addition to the stocks listed in DIS-25 the following stocks are now available.

Chromosome 1

cv f
spl rb^{S2}
w rst³ f m/M-5
w^a
w^a spl
w^{bf} → + f⁵
y² v
y² w^a cv v f
y² w^a rb^{S1}
y² w^a rb^{S1} m/Oregon-R bb
y² w^a v

Chromosome 2

B1 stw⁴⁸ blt tuf/Cy sp²

Chromosome 3

se ss k e^s ro
se^{51j}

Inversions

In(1)rst³, rst³
In(1)rst³, y rst³ car bb
Ins(1)sc⁸, dl-49, y^{3ld} w^a lz^s B/
br w^e ec rb t⁴
In(1)sc¹⁰, w^a
In(1)sc¹⁰-1/y Hw

3N

Free-X 3N from colchicine-treated diploid
Oregon-R-I female.

Special isogenic stocks

B1/Oregon-R-I♀ x Oregon-R-I♂ (C)
Sb/Oregon-R-I♀ x Oregon-R-I♂ (C)
cv/Oregon-R♀ x cv ♂ (C)
w^a Oregon-R (C)
y^{51g} f Oregon-R (B)

SALT LAKE CITY, UTAH: UNIVERSITY OF UTAH

Note: Only special stocks are listed below.

127 N ^{50k11} /dl-49, y Hw w m ² g ⁴ ; Dp(1;3)w ^{50k11}	135 y N264-54/dl-49, y Hw m ² g ⁴
128 y N264-2/dl-49, y Hw m ² g ⁴	136 y N264-84/dl-49, y Hw m ² g ⁴
129 N264-8/dl-49, y Hw m ² g ⁴	137 y N264-97/dl-49, Hw g ⁴
130 y N264-32/dl-49, y Hw m ² g ⁴	138 N264-105/dl-49, Hw m ² g ⁴
131 y N264-34/dl-49, y Hw m ² g ⁴	139 N264-110/dl-49, y Hw m ² g ⁴
132 w ^{ch} N264-39/dl-49, y Hw m ² g ⁴	140 y N264-111/dl-49, Hw m ² g ⁴
133 N264-40/dl-49, y Hw m ² g ⁴	141 N264-118/dl-49, Hw m ² g ⁴
134 y N264-53/dl-49, y Hw m ² g ⁴	142 N264-126/dl-49, y Hw m ² g ⁴
	143 tumorous-head

ARGENTINA

Buenos Aires: Universidad de Buenos Aires, Facultad de Ciencias Exactas y Naturales, Catedra de Citologia y Genetica

Note: Stocks are the same as listed in DIS-25 (p. 50) under "Instituto de Genetica, Universidad de Buenos Aires."

AUSTRALIA

Adelaide, South Australia: University of Adelaide, Waite Agricultural Research Institute, Department of Genetics

<u>Wild Stocks</u>	11 v	24 y ² su-w ^a w ^a spl
1 Oregon-R	12 w	25 Xc ² /sc ^{Sl}
2 Canton-S	13 w ^a	26 f. Y ^S /Y ^L
	14 wbl	<u>Chromosome 2</u>
<u>Chromosome 1</u>	15 wch wy	27 "all"/Cy pr
3 B	16 we-2	28 b j
4 car bb; ybb	17 w f	29 bw
5 In(1)rst ³ , y rst ³ car bb	18 w m f/C1B	30 Cy L ⁴ /a le cg
6 rb cx	19 w ^{m258-2T} , y w/dl-49, y Hw m ² g ⁴	31 Cy L ⁴ /b le cg
7 sc cv v	20 y	32 ds S G b pr/Cy L
8 sc ² pn	21 y sc	33 dp
9 sc ⁸ B In-S w ^a & y f:=	22 y w	34 fj px sp
10 sn	23 y/B	

35 ho
36 Sp Bl/Cy
37 vg
38 vg pr

Chromosome 3

39 Bxl e⁴/In(3R)Mo, Sb sr Su-Sb
40 D/LVM
41 e wo ro
42 G1 Sb/LVM
43 In(3R)Hu, Hu st Sb^{Sp1}/Payne
44 Ly/D³
45 Ly/LVM
46 M(3)w/In(3R)C₁ e 1(3)e
47 ri bod e⁵/Me, In(3R)C Sb e 1(3)e

48 rs²
49 su-bxd bx bxd/In "TM"

Chromosome 4

50 Cat/ci^D
51 ci ey^R
52 ci^D/ey^D

Multichromosomal

53 hy a px sp/T(2;3)S^M, Cy
54 su-b; b pr c
55 v; st
56 y; bw; e; cy ey^R
57 y w; dp

Melbourne: University of Melbourne, Department of ZoologyWild Stocks

Canton-S

+S50 iso (stock descended from a single female taken in January, 1950, near Melbourne and since rendered isogenic by single-pair brother-sister matings for 56 generations)

+ASA (Adelaide, South Australia)

+BQ (Brisbane, Queensland)

+MB (Mildura, Victoria)

Chromosome 1

101 B
102 car bb; y^{bb}
103 oc ptg³/C1B
104 sc^{SI} B In-S w^a sc⁸
105 w
106 we²
107 y w^a cv
108 y w^a ct v f
109 y w²⁵⁸⁻²¹/dl-49 y Hw m² g⁴
110 y w^a ec cv ct v f/C1B
111 y sc m f⁵
112 y/B
113 X^{c2}/sc^{SI}
114 ct v f

Chromosome 2

201 al
202 al dp b pr c px sp/Cy pr
203 b cn c bw
204 b pr cn
205 Cy/Pm ds^{33k}
206 ds S G b pr/Cy L
207 fj wt/Xa
208 S/Cy, E-S

209 S² Cy Bl cn² L⁴ sp²/InNSL InNSR px sp
210 Cy L/Pm ds^{33k}
211 Sp Bl/Cy
212 bw

Chromosome 3

301 Bd^G
302 ca
303 D/LVM
304 D1³/In(3R)C, e
305 h st e^s
306 Ly/D³
307 M(3)w/In(3R)C, e 1(3)e
308 ru h st p^p ss e^s
309 se^{5lk}
310 ss
311 ss^a
312 st

Chromosome 4

401 ci
402 ci ey^R
403 ey²

Multichromosomal

501 bw; st
502 ss; ey²
503 vg; se
504 y; bw; e⁴ ro; ey²
505 y; Cy/Pm ds^{33k}; H/Sb
506 Muller-5; Cy/Pm ds^{33k}; H/Sb
507 S Sp P⁻ T2:3 Ins CXF/al² Cy cn² L⁴ sp²; D1 H e Pⁱ

Sydney: The University of Sydney, Faculty of Agriculture

<u>Wild Stocks</u>	8 al dp d b c px sp/ Cy sp	<u>Multichromosomal</u>
1 Oregon-R-C	9 dp cn bw	18 dp; e 19 v; bw 20 bw; st 21 bw; e ro; ey ²
<u>Chromosome 1</u>	<u>Chromosome 3</u>	
2 w	10 e	
3 y w ^e	11 e ^s	<u>Special Stocks</u>
4 sn ³	12 R	22 w ^{bf} f ⁵ /y v f car (attached-X)
<u>Chromosome 2</u>	13 st	23 Pr/In(3R), 1
5 b j	14 D ³	
6 bw	15 ss	
7 dp	16 e st	
	17 Ly/D ³	

AUSTRIAVienna: Institut f. allgemeine Biologie d. UniversitätNote: Stock list unchanged. See DIS-22, p. 40, Zoolog. Institut.BELGIUMBrussels: Université Libre de Bruxelles, Laboratoire de Morphologie AnimaleNote: Stock list remains unchanged. See DIS-25, p. 51.Louvain, Université de Louvain, Institut Agronomique

<u>Wild Stocks</u>	<u>Chromosome 1</u>	<u>Chromosome 2</u>
1 Canton-Special	3 B	5 vg
2 Berlin Inzucht	4 w	<u>Chromosome 3</u>
		6 e ⁴

BRAZILCuritiba, Paraná: Universidade do Paraná, Faculdade de Filosofia, Ciências e Letras, Laboratório de Genética

<u>Wild Stocks</u>	
Curitiba, Paraná (2 strains)	Gaspar, Santa Catarina (1 strain)
Esteio, Rio Grande do Sul (2 strains)	Iratí, Paraná (5 strains)
	Teixeira Soares, Paraná (1 strain)

CANADAMontreal, Quebec: McGill University, Department of GeneticsNote: Stock list substantially unchanged. See DIS-25, p. 51.

CHILESantiago: Universidad de Chile, Instituto de Biología "Juan Noé"

<u>Wild Stocks</u>	13 ("sz bw") Y^{lc} / $X.Y^S$; bw	25 se
1 Canton-S	14 ("sz w") Y^{lc} / $w.Y^S$	26 se ell
2 Oregon-R-C	<u>Chromosome 2</u>	27 se ell; tu^{49h}
3 Santiago	15 bw	28 ss
<u>Chromosome 1</u>	16 dp	29 st
4 ct^n ec/ <u>C1B</u>	17 L^2	30 st sr e^S ro ca; tu^{36a}
5 f	18 lcal	<u>Chromosome 4</u>
6 m	19 lgl cn bw/Cy cn bw	31 ey^2
7 sc	20 mi/ Pm^2	<u>Multichromosomal</u>
8 sc^{SI} B InS w^a sc^8	21 nw^2 /Cy	32 Cy/ Pm , ds^{33k} ; H/C, Sb
9 w	<u>Chromosome 3</u>	33 dp; ell
10 y	22 ell	34 e tx; w^a
11 ym	23 Gl Sb/LVM	35 w; vg
12 ("sz ⁺ ") Y^{lc} / $X.Y^S$	24 ro	36 y; bw; e; ci; ey^2

FRANCEGif sur Yvette (S et O): Centre National de la Recherche Scientifique, Laboratoire de Génétique Evolutive and Laboratoire de Génétique Formelle

<u>Wild Stocks</u>	27 w^{ch} wy	51 se
1 Amiens	28 w^{co}	52 se cp e
2 Banyuls	29 w^e	53 st
3 Beaulieu-sur-Mer	30 y	54 tr/Mé Sb
4 Blois	31 y w	55 Tu
5 Challuz	32 y w^a cv v f	<u>Chromosome 4</u>
6 Champetieres (Inbred for 180 generations)	33 yy/sc z w^{co}	56 bt^D/ci^D
7 Charolles	<u>Chromosome 2</u>	57 ci^D/ey^D
8 Florida	34 al dp b pr c px sp/ Cy pr (all)	<u>Multichromosomal</u>
9 Franche-Comté	35 b	58 B; Tu
10 Misy-sur-Yonne	36 b j cn	59 Cy/ Pm ; H/Sb C
11 Oregon-R-C	37 b vg bw	60 f; b j cn
12 Paris 5e	38 bw	61 f. Y^S/sc Y^L and $y_w f/sc$ Y^L
13 Roulans	39 cn	62 y; bw; e; ci ey^R
14 Vuillafans	40 Cy/B1 sp^2	<u>CO₂-Sensitive Stocks</u>
<u>Chromosome 1</u>	41 fes/Cy al ² lt ³ L ⁴ sp^2	Several stocks carrying mutants of the CO ₂ virus
15 B	42 j	
16 f B	43 L	
17 g^2	44 Ly/D ³	
18 m	45 net b cn bw	
19 Muller-5	46 vg	
20 $rst^2/dl-49$, y Hw m^2 g^4	47 vg bw	
21 sc cv v f	<u>Chromosome 3</u>	
22 sc ec ct v g^2	48 e	
23 sc ec cv ct ⁶ v g f/ <u>C1B</u>	49 R/Mé	
24 w	50 ru h th st cu sr e^S ca (ru-cu-ca)	
25 w^a		
26 w^{bl}		

Paris: Université de Paris, Laboratoire de Génétique

Wild Stock

1 Ore R-C

Chromosome 1 (X)

2 B

3 C1B/1z w

4 C1B z/dl-49, sc z m² g⁴5 g²6 1(1)7/dl-49, y m² g⁴

7 m

8 M-5

9 sc ec ct v g²

10 sc z ec ct

11 sc z w^{17G2} ec ct

12 v

13 w

14 w^a

15 y

16 y m² g⁴

17 y z ct

18 y z^a

19 z

20 z/B

21 z w^{11E4}Chromosome 2

22 b

23 b bw

24 b cn

25 b vg

26 b vg bw

27 bw

28 cn

29 cn bw

30 Cy/B1

31 vg

32 vg bw

Chromosome 3

33 DcxF/Dfd

34 e

35 ltd

36 p

37 sc

38 sc cp

39 sc e

40 sc cp e

41 st

42 Tu

Chromosome 443 ci^D/ey^DMultichromosomal

44 bw; e

45 Cy/Pm; H/Sb-C

46 pr; st

47 v; bw

48 y v; bw

Closed-X49 y f/X^{c2} tDeficiencies and Duplications50 Df(1, pn-z-w)z¹/Dp(1-1)z⁴51 Df(1, z)z⁵/dl-49, y m² g⁴52 Df(1, w)z⁶/dl-49, y m² g⁴53 y/Dp(1-f)z⁹, sc^{J4R}Translocations54 T(1-2)z^{14E9}/dl-49, sc z m² g⁴55 T(1-2)z^{13G2}/C1B z56 T(1-3)z^{7E8}/dl-49, sc z m² g⁴57 T(1-4)w^{m5}58 T(1-4)z^{20G1}/dl-49, sc z m² g⁴

59 T(2-3)E

New Mutants and RearrangementsT(1-2)z^{14E9} Break points: 3B2-3C1 and 24D2T(1-2)z^{13G2} Break points: 3C1-5 and 41AT(1-3)z^{7E8} Break points: 3C6-7 and 24E1T(1-4)z^{20G1} Break points: 3C1-2 and 102Fw^{17G2}

From X-rayed sc z ec ct male; like w

w^{11E4} From X-rayed z male; like w; inhibitor of zz^a (zeste a) 1-1. From X-rayed Ore-R-C male.Heterozygous z^a/z females like z, but homozygous z^a/z^a wild-type.GERMANY

Berlin-Buch: Institut für Medizin und Biologie, Genetische Abteilung,
Lindenberger Weg

Wild Stocks

1 normal (Berlin wild)

2 normal (England)

Chromosome 1 (X)

3 w

4 w sn³5 w^{bf}6 w^a7 w^e8 w^{co} sn²9 w^{ch} wy10 w^{m4}11 gt w^a

12 y

13 y³⁰³

14 y w

15 y pn

16 y cv v f

17 y w^a fan

18 y w bb

19 y w B bb

20 y fa wy² g²

21 f	<u>Chromosome 2</u>	<u>Chromosome 4</u>
22 sc	51 j	79 ey ²
23 sc rb cv	52 bw	80 ci ey ^R
24 sc ec ct	53 bwPP	
25 spl	54 b cn vg	<u>Multichromosomal</u>
26 m	55 L ² /Cy	81 Bld w ^a /w; Cy
27 B	56 Cy L ⁴ /Sb Mé	82 w; vg
28 car bb Y; bb	57 lgl cn bw/Cy cn ²	83 w; vg; ell
29 car	58 fj px sp; pb/Mé Sb	84 w; ell
30 v	59 S Sp ab ² ltd/NS px sp	85 cn; ss
31 cv	60 5-pl (b pr vg a sp)	86 v; cn
32 bb ²	61 vg	87 v; bw
33 fa ⁿ	62 V ⁴ Pr/Cy	88 y ^{Si} sc ⁸ In ^S y ^{3P} ;
34 yy x +	63 bw cn	al ² Cy lt ³ sp ² /dp
35 yy x we	64 al dp	b Pm ¹ ; ru h D InCxF
36 yy x Xc ² f	65 a sp	ca/Sb In3R
37 yy x y cv ct v g f B	66 Cy (Panschin)	89 e, originally
38 yy x Xc	67 Cy 2P (Panschin)	CO ₂ -sensitive
39 ywf x +	68 "F ₁ Cy only"	(virus)
40 ywf x B		90 Berlin wild,
41 +/ClB	<u>Chromosome 3</u>	DDT-resistant 1
42 v/ClB	69 ell	91 Berlin wild,
43 we bb ¹ /ClB	70 st	DDT-resistant 2
44 y w/ClB	71 p ^P	
45 y w/y ClB	72 III-pl (ru h st p ^P ss e ^S)	
46 sc ec cv ct ⁶ v s ² f	73 ru h st p ^P	
car bb ¹ /ClB	74 Dfd ^{R-L}	
47 Xc/ClB	75 ru h st Dfd p ^P ss e ^S	
48 17/dl-49, y Hw w lz ^S	76 ri	
49 sc ^{Sl} (InS) wa sc ⁸	77 ss ^a	
50 sc ^{Sl} (InS) B wa sc ⁸	78 ss ^{a-F}	

Berlin-Dahlem: Institut für Genetik der Freien Universität Berlin

<u>Wild Stocks</u>	15 w sn ³	<u>Chromosome 4</u>
1 normal (Berlin wild)	16 wy	29 ci/ey ^R
<u>Chromosome 1 (X)</u>	17 y cv v f	30 ey ²
	18 y w	
	19 +/ClB	<u>Multichromosomal</u>
2 B	<u>Chromosome 2</u>	31 cn; ss
3 cv	20 b cn vg	32 e; vg
4 f	21 bw	33 y ^{Si} sc ⁸ In ^S y ^{3P} ; al ² Cy
5 m	22 Cy (Panschin)	lt ³ sp ² /dp b Pm ¹ ; ru h
6 sc ec ct	23 L ² /Cy	D InCxF ca/Sb In3R
7 sc ec cv ct ⁶ v s ^e f	24 S Sp ab ² ltd/NS px sp	<u>Virus?</u>
car bb ¹ /ClB	25 vg	34 e CO ₂ -sensitive
8 v		(L'Héritier)
9 w	<u>Chromosome 3</u>	
10 w ^{bf}	26 ell	
11 wa	27 ri	
12 w ^{co} sn ²	28 jv se	
13 we		
14 w ^{ch} wy		

Göttingen: Max-Planck-Gesellschaft, Institut für Tierzucht und Tierernährung

Note: New stock list not received. See DIS-25, p. 53.

Göttingen: Zoologisches Institut der Universität

<u>Wild Stocks</u>		<u>Multichromosomal</u>
1 Berlin	19 y cv v f	33 cn; ss
2 Bovenden	20 y cv v f car	34 Cy al ² lt ³ L ⁴ sp ² /+; C
3 Oregon-Dresden	21 In(1)ne	Mé Sb C/+
	<u>Chromosome 2</u>	35 fj px sp; pb/C Mé Sb C
<u>Chromosome 1</u>	22 al	36 vg; ell
4 B	23 al dp	37 w; j; ell; ey ²
5 ClB/+	24 dp	38 y; dp; se; ey ²
6 car bb; ybb	25 fes lt/Cy al ² lt ³ L ⁴ sp ²	39 Cy/Pm ds ^{33k} ; H/C Sb
7 fa ⁿ	26 j	40 a(1)48; a(2)48; a(3)48
8 fa ^{no}	27 L ² /Cy	41 a(2)48; H/C Sb
9 m	28 vg	42 Cy/Pm ds ^{33k} ; a(3)48
10 sc ¹	<u>Chromosome 3</u>	43 a(1)50; Cy/Pm ds ^{33k} ;
11 sc ¹ ec ct ⁶	29 ell	H/C Sb
12 sc ^{Sl} B Ins w ^a sc ⁸	30 ru h st p ^p ss e ^s	44 a(1)51; Cy/Pm ds ^{33k} ;
13 v M(1)n/In(1)AM	<u>Chromosome 4</u>	H/C Sb
14 w		<u>Attached-X</u>
15 w ^a	31 ci ^D /ey ^D	
16 w ^m	32 ey ²	45 y
17 w sn ³		
18 y		

Hamburg-Eppendorf: Universitäts-Frauenklinik, Strahlenbiologische Abteilung

<u>Wild Stocks</u>		<u>Multichromosomal</u>
1 normal (Berlin wild)	4 sc ⁸ Y/y f x sc ⁸ Y/ X ^{c2} y v	7 cn; ss
	5 w	
<u>Chromosome 1 (X)</u>	6 X ^c /ClB	<u>Attached-X</u>
2 ClB/+		
3 sc ^{Sl} B Ins w ^a sc ⁸		8 y

Heidelberg: Zoologisches Institut der Universität

<u>Wild Stocks</u>		<u>Multichromosomal</u>
1 Berlin-normal	12 tw/B	25 dp ^{dx-H}
2 Canton-S	13 tw	26 j
3 Oregon-R-C	14 w	27 L ² /Cy
	15 w ^{bf}	28 ri
	16 w ^{co} sn ²	29 vg
<u>Chromosome 1</u>	17 w ^m	<u>Chromosome 3</u>
4 B	18 w sn ³	30 bx ^{34e}
5 ClB/+	19 X ^{c2}	31 ell
6 cv w	20 y/+	32 Ly/D ³
7 fa ⁿ	21 y w f/+	33 se
8 m	<u>Chromosome 2</u>	34 ss ^{a-F}
9 s	22 al	<u>Chromosome 4</u>
10 sc	23 al dp	35 ar/ey ^D
11 sc ec ct	24 c	

GREAT BRITAINBayfordbury, Hertford, England: John Innes Horticultural InstitutionNote: New stock list not received. See DIS-25, p. 54.Birmingham, England: The University, Department of GeneticsNote: New stock list not received. See DIS-25, p. 55.Edinburgh, Scotland: Edinburgh University, Institute of Animal GeneticsWild Stocks

	38 ClB/y w lz
1 Bonnyrigg (2)	39 ClB/y nw m ² g ⁴
2 Canton-S	40 dow/y Hw m ² g ⁴ , delta-49
3 Crianlarich	41 f
4 Dublin	42 m
5 Eket	43 pn ²
6 Hallwood	44 ras ²
7 Hendon A	45 sc ec
8 Hendon B	46 sl
9 Ibadan	47 Sc ^{sl} (In-S) w ct sc ⁸
10 Ischia	48 sc ^{sl} (In-S) w ^a ct sc ⁸
10a Israel	49 sc ^{sl} B (In-S) w ^a sc ⁸ (Muller-5)
11 Kaduna (N. Nigeria)	50 sc ⁸ B/w lz ^s , delta-49
12 Kumba (Br. Cameroons)	51 w
13 Nettlebed	52 w ^a
14 Oregon-K	53 a
15 Oregon-R	54 w
16 Oregon-S	55 w ^{m4}
17 Renfrew	56 w sn ³ B
18 Samarkand	57 y fa ⁿ , delta-49
19 Urbana-S	58 y fa wy ² g ⁴
20 Ware	59 y w
21 Victoria	60 y w sn ³
22 Wild Edinburgh	61 v
	62 v dy
	63 v m f car

Inbred Stocks

23 Crianlarich
24 Ischia
25 Nettlebred
26 Oregon-K
27 Oregon-R
28 Renfrew
29 Samarkand
30 Wild Edinburgh

Attached-X

23 Crianlarich	64 Muller-5 and w
24 Ischia	65 Muller-5 and w lz ^s , delta-49
25 Nettlebred	66 Muller-5 and y Hw m ² g ⁴ , delta-49
26 Oregon-K	67 Muller-5 and y sc v f car
27 Oregon-R	68 y and fu ^{gl}
28 Renfrew	69 y and w
29 Samarkand	70 y and y ² sc ⁸ w ^a B
30 Wild Edinburgh	71 y and y w lz
	72 y v f and sc ^{sl} (In-S) w ^a sc ⁸
	73 y w f and w

Chromosome 1

31 B
32 bi ct ⁶ v
33 ClB/fu
34 ClB/or
35 ClB/sc ct m f car
36 ClB/sc ct v f car
37 ClB/sc v f car (scar)

Closed-X

74 X ^{cl} y/sc ^{sl}
75 X ^{c2} cv v f/sc ^{sl}
76 X ^{c2} cv v f/ClB
77 y v f car/X ^{c2} car ⁺ (small ring) and v wy f car/

Deletions and Duplications

78 Df(1)N⁸/y Hw m² g⁴, delta-49
 79 y⁻ sc^{S1} (In-S) w^a ct sc⁸/y w lz
 80 y w f.dp. sc^{S1}
 81 y w f.Dp. sc^{S1} and y w f
 82 y² eg; Df(Y)Y^{bb}/y^w bb Df(Y)Y^{bb}

Chromosome Y

83 f. Y^S/Y^L
 84 f. Y^S/sc Y^L and y w f/sc Y^L
 85 X Y^L/Y^S Neuhaus
 86 y v f Y^L and f/Y^S
 87 T (1,4)B^S, Y^S/sc Y^L and y w f
 sc Y^L

Chromosome 2

88 al
 89 al dp b pr c px sp
 90 b blt
 91 b rn px/Cy pr
 92 b cn vg
 93 Bl L²/Cy
 94 c
 95 Cy/Pm
 96 d b l/Cy pr
 97 dp
 98 ds b pr cg/Cy dp
 99 ds ap⁴ vg/Cy al² L⁴ sp²
 100 nk
 101 no
 102 lf al/Cy L⁴ sp
 103 oph
 104 pr
 105 stw²
 106 vg
 107 wt

Chromosome 3

108 Tp(3)bxd¹⁰⁰ ri/T(2,3)Mé
 109 app
 110 bul
 111 bxd e^S/sbd².bx³
 112 bx^D e^b/Payne Dfd ca
 113 cu kar
 114 Dfd/th st p^b p^p ss bx
 115 e
 116 Gl/LVM
 117 Gl Sb/LVM
 118 Ly/D
 119 ri
 120 ro
 121 rucuca
 122 ru h th st cu sr e^S Pr ca/
 T(2,3)Mé
 123 Sb/LVM
 124 ss
 125 ss^{a-B}

126 ss^{a-Sn B}/T(2,3)Mé
 127 ss^{a-40a}
 128 ss e

Chromosome 4

129 ci ey^R
 130 ci^D/ey^D
 131 ci^W
 132 ci gvl ey^R svn
 133 ey²
 134 ey⁴

Multichromosomal

135 ant; ro
 136 ClB; Cy al² sp²; T(2,3)Mé
 137 ClB; Pm; H
 138 Sy; tet
 139 Cy/Bl L²; D/LVM
 140 Cy/Pm; Ly/D
 141 dp; e
 142 Muller-5; dp; e
 143 Muller-5; Cy al² L⁴ sp²
 144 sc^{S1} and y; bw; e; ey
 145 sc^{S1} (In-S) w^a sc⁸; dp; e
 146 v; bw^{Va}/Bl L²
 147 v and y v f; bw^{Va}/Bl L²
 148 v; dp; e
 149 dp vg; e

Translocations

150 e^S cd ro cmp ca/Xa ca
 151 T(2,3)Mé/Xa
 152 T(1,3) and y; bw; e; ey

Triploid

153 y/Muller-5 ct

Inversions

154 In(1)rst³ y rst³ car bb
 155 In(2)IR40d/Cy sp²
 156 In(3R)ss¹⁰¹ In(3R)Payne/Sb Bx1
 157 D³Sb ca²/Payne
 158 cmp ca/In(3R)C, e
 159 st c - 3G ca/In-T(2,3)Mé (IN "TM")
 160 y m g, dl-49, 1c⁶/sc⁸ w^a B
 161 y Hw m² g⁴, dl-49/+; by/l⁸

Special StocksDr. C. Auerbach

formalin-produced sex-linked lethals (85)
 X-ray-produced second-chromosome lethals
 (8)

Dr. H. Slizinska

spontaneous lethals (17)
 X-ray-produced lethals (17)
 mustard gas-produced lethals (10)
 formalin-produced lethals (deficiencies)
 (7)

Mr. D. A. Ede

embryonic lethals/Muller-5 (2)

Mr. A. F. el Khishin

X-ray-induced lethals (50)

Mr. H. el Shatoury

spontaneous lethals (3))

X-ray lethal (1)) all sex linked

chemical lethals (6))

Glasgow, Scotland: University of Glasgow, Department of GeneticsNote: Additions to list in DIS-25:Inversions

cn bw Kr/In(2LR)Pm
 crc cn bw/In(2L,2R)Cy
 br ec; ix/In(2L,2R)Cy
 lgl cn bw/In(2L,2R)Cy cn bw

TranslocationsT(1;4)N^{8a}Harpenden, Herts, England: Rothamsted Experimental StationWild Stocks

John Innes "Rothamsted"
 Kenya
 Merton Park

Rothamsted (CO₂-sensitive)
 "Rothamsted" x Crimea x Oregon x
 Samarkand, in addition to parent stocks

London, England: University of London, King's College,
Department of BotanyNote: Only stocks not listed at Edinburgh in DIS-25 are given below.Chromosome 1

1 f BⁱBⁱ
 2 m/f B
 3 na/Muller-5
 4 w m f/Muller-5
 5 y m car

Chromosome 2

6 b pr vg
 7 cn bw
 8 cn vg bw
 9 fj px sp
 10 ho

Chromosome 3

11 Ly/LVM
 12 ro e^s cd cmp ca/Mé, In(3R)C Sb
 e 1(3)e

Chromosome 413 ar/ey^DMultichromosomal

14 bw; st
 15 Cy al L⁴ sp/Pm; H/Sb sr In(3R)Mo
 16 v; bw

London, England: University College, Department of BiometryWild Stocks

Oregon +
 Kenya + (Inversion on X)

Chromosome 1

Kenya w^xIn(1)Kenya
 wbl

we2

w^a mw^{ch} wyw^{co} short bristlew^{m4}

bsd

v

R^x3

sd

BB

v sd

y m car

rst³y and w^a m f

y and sc rb ct m

v and v rst³ m car

ClB/sc v f. car

N⁸/+N⁸/dl-49 y Hw m² g⁴Chromosome 2

bw

cn

cn bw

pk bw

Chromosome 3

ss

ss^a

ve

ve ss^ae ss^a

st

Mc/Sb

Multichromosomal

v bw

dp ss^aISRAELJerusalem: Hebrew UniversityWild Stocks

1 Canton-S

2 Qiryat 'Anavim

8 cn bw

9 Cy L⁴/Pm

10 vg

Chromosome 4

17 ci ey

Chromosome 1 (X)

3 sn

4 w

5 y/+

Chromosome 2

6 b cn vg

7 Bl L²/CyChromosome 3

11 e

12 Gl Sb/In

13 Sb/LVM

14 se

15 ss

16 ss e

Multichromosomal18 Ct L⁴/Pm; D/Sb

19 Cy/Pm; Ly/D

ITALYMilano: Università di Milano, Istituto di GeneticaWild Stocks

1 Aspra

2 Crkwenika (oregonized except Y)

3 Crkwenika (newly oregonized)

4 Gaiano

5 Luino (oregonized except Y)

6 Luino (newly oregonized)

7 Moltrasio

8 Oerlikon (oregonized except Y)

9 Oerlikon (newly oregonized)

10 Oregon-R

11 S. Maria

12 Valdagno

13 Varese

Chromosome 1

14 B

15 Bx³ (oregonized)16 faⁿ17 m² g⁴18 N^{B-S}

19 sd

20 w

21 w^a22 w^{bl}23 w^{bf}24 w^e25 wⁱ

26 y Hw

Chromosome 2

27 b cn vg

28 blt

29 blt^S

30 cn

31 ll

32 so

33 so² b cn34 so^C

35 spt

Chromosome 3

36 cp

37 gl³

38 mwh

39 obt

40 ri-se ss k e^s ro41 rs²Not localized42 abab⁴⁹ cn

(autosomal)

Inversions

43 ClB/+

44 ClB y/y Hw m² g⁴45 l(1)7/dl-49 y Hw
m² g⁴

46 Cy sp/Pm

47 H/Sb sr In(3R)Mé

48 L⁴ Cy sp/Pm; H/
Sb sr In(3R)MéStocks selected for tumor
manifestation

49 tu Gaiano

50 tu Oerlikon

51 tu Oregon

52 tu N^{B-S}

53 tu w

54 tu y Hw

55 tu so^C

56 tu mwh

57 tu ri-se ss k e^s ro

Pavia: Università, Istituto di Genetica

<u>Wild Stocks</u>	23 w B	48 Gl Sb/LVM
1 Ankara	24 w ^{Berlin}	49 ri-s se ss k e ^s ro
2 Belluno	25 w ^{bf}	50 rs ²
3 Canton-S	26 w ^{co} sn	51 sc h th
4 Chieti	27 w ^e	52 ss
5 Crkvenica	28 w ⁱ	53 ss ^{a-44} a
6 Jaslo	29 w ^{m-4}	54 st
7 Oregon-R	30 w ^{m-4000}	55 tt wo
8 Suna	31 w ^{m-6000}	<u>Chromosome 4</u>
<u>Inbred Stocks</u>	32 w ^t	
9 Oregon (303 gen.)	33 y/+	56 ey ²
10 Samarkand (191 gen.)	34 y w ^a cv v f	57 sv
	35 y w sn	<u>Chromosome Y</u>
<u>Chromosome 1</u>	<u>Chromosome 2</u>	
11 B	36 b cn vg	58 f. Y ^S /sc Y ^L and <u>y w f/sc</u> Y ^L
12 ClB/+	37 b pr e px sp	<u>Multichromosomal</u>
13 Df(1)N8/y Hw m ² g ⁴ , dl-49	38 Cy/L2	
14 lz/ClB	39 oo	59 al L ⁴ Cy sp/Pm; H/Sb sr In(3R)Mé
15 sc ct v f car/ClB	40 vi	60 bw; e ⁴ wo ro
16 sc ^{S1} B(In-S)w sc ⁸	<u>Chromosome 3</u>	61 cn; ss
17 sc ^{S1} B(In-S)w ^a sc ⁸	41 app	62 ell; st ss
18 sc ^{S1} (In-S)w ^a ct sc ⁸	42 cd	63 px ^{43j} oo; ru jv se st ca
19 t	43 cd ^{45j}	<u>Special stock (isogenic)</u>
20 v ^m	44 D Sb/e Cl-CR	
21 w	45 Dfd/Cx D	64 cn; ss
22 w ^a	46 D1 ⁷ /In(3R)Mé Sb sr	
	47 fj-s	

JAPANKyoto: Kyoto University, Zoological Institute

<u>Wild Stocks</u>	18 Bx ^{50a}
1 Ashitakayama (Japan)	19 ec
2 Kitashirakawa (Japan)	20 ec ct ⁶ g ² bb ² /ClB
3 Mishima-Kansha (Japan)	21 f
4 Miyazaki-1 (Japan)	22 fa
5 Oregon-R-S	23 f B ¹ B ¹ /y
6 Otau (Japan)	24 fu
7 Shima (Japan)	25 fu ^g /y v f car
8 Stephenville	26 g ² ty/y
9 Tokushima (Japan)	27 lz ³ /y f:-
10 Tokushima-Iwakura (Japan)	28 m
11 Yamaguchi (Japan)	29 rst ² /dl-49 y Hw m ² g ⁴
<u>Chromosome 1</u>	30 sc ^{S1} B InS w ^a sc ⁸ (Muller-5)
12 amx/ClB	31 sd mc
13 B	32 v
14 B (from Berkeley)	33 w
15 BB	34 w B ¹
16 bb y ^{bb}	35 w f
17 Bx (from Berkeley)	36 w mt
	37 w ^a
	38 w ^e

39 y
40 y ac v
41 y w
42 y w f

Chromosome 2

43 al dp b pr c px sp/Cy
44 al dp b pr c px sp/Cy pr (all)
45 ap⁴/Cy
46 b (Inversion?)
47 b dp
48 b gp
49 bw
50 bw/Cy
51 bw/vg
52 cn
53 dp
54 dp^x
55 L²
56 pr en
57 px
58 S Sp ab² lt d/NS, px Sp
59 S/Cy E-S
60 vg
61 vg^{no}
62 vgⁿⁱ
63 vgⁿⁱ/S^M Cy
64 vg^{ng}
65 vg^{NW} Hia/T(2;3)S^M Cy

Chromosome 3

66 Bx 1/Payne, Dfd ca
67 DL³/In(3R)C, e
68 ell
69 G1 Sb/LVM
70 H²/Xa
71 p^p bx sr l^s

72 ro
73 ru
74 ru h th st cu sr e^s ca/Mé Lx
75 (Sbd²) bx³ Bx^L/Xa
76 se
77 st
78 ve

Chromosome 4

79 ey
80 vgl ey^R
81 Scn/ey^D
82 svn

Multichromosomal

83 cn; bw
84 st; bw
85 v; bw
86 w^e f; sr
87 y; bw; e; ci ey^R

Translocations

88 T(2;4)A 29/Cy

Special Stocks

89 w258-11 (Df w)	y w258-11/dl-49, y Hw m ²
90 w258-45 (Df w)	y w258-45/dl-49, y Hw m ² g ⁴
91 N264-8	N264-8/dl-49, y Hw m ² g ⁴
92 N264-72 (Df)	y N264-72/dl-49, y Hw m ² g ⁴
93 N264-112 (In)	y N264-112/dl-49, Hw m ² g ⁴

Unanalyzed

94 Virus? CO₂-sensitive (L'Héritier)

Misima, Sizuoka-ken: National Institute of Genetics

60 mutant and wild stocks

Osaka: Osaka University, Faculty of Medicine, Department of Genetics

Wild Stocks

1 Oregon
2 Oregon-R-S
3 Stephenville
4 Canton-S
5-23 Wild types in Japan

Chromosome 1

24 B
25 BB
26 B bb

27 Bx^{50a}
28 Df(1)N²⁶⁴⁻⁸/dl-49
y Hw m² g⁴
29 ec ct g² bb¹/ClB
30 f
31 f BⁱBⁱ/Y
32 m
33 v
34 w
35 w Bⁱ
36 w m
37 w m Bⁱ

38 wa
39 w^e
40 y ac v
41 y m
42 y m f
43 y w
44 y w f

Chromosome 2

45 al dp b pr c px sp/Cy
46 b gp
47 bw

	<u>Chromosome 3</u>	<u>Multichromosomal</u>
48 bw/Cy		
49 cn	56 e ^{ll}	63 v; bw
50 cn bw	57 ro	64 v; px
51 cn vg bw	58 ru	65 w; px
52 dp	59 se	66 w ^e f; sr
53 L ²	60 se st	67 Muller-5; vg ^{no} ; Sb/H
54 px	61 st	68 y; bw; e; ci ey ^R
55 vg		69 Cy/Pm
	<u>Chromosome 4</u>	70 S/Cy; D/Cx
	62 ey	71 vg; se

Sapporo: Hokkaido University, Faculty of Science, Institute of Zoology

<u>Wild Stocks</u>	3 Sapporo	<u>Mutants</u>
1 Oregon-R	4 Shioya	6 B
2 Otaru	5 Utsunomiya	7 vg; se

Tokyo: Tokyo Metropolitan University, Department of Biology

<u>Wild Stocks</u>		60 vg bw
1 Canton-Special	33 y	
2 Hachiojima	34 y w	<u>Chromosome 3</u>
3 Hikosan-Kyûshû	35 y w f	61 Bd ⁴⁹¹ /H
4 Hiroshima		62 Bd ⁴⁹¹ /Sb
5 Hita-Kyûshû	<u>Chromosome 2</u>	63 Bxl/Payne, Dfd ca
6 Karachi, India	36 al dp b pr c px	64 cu
7 Omogo-Shikoku	sp/Cy pr (all)	65 D1 ³ /In(3R)C, e
8 Oregon	37 al dp b pr c px	66 D1 ⁴⁹¹ /1(3)
9 Senzoku-Tokyo	sp/Cy	67 e ^{ll}
10 Tokyo	38 ap ¹ /Cy	68 G1 Sb/LVM
11 Yonekawa-Yamaguchi	39 bw	69 H ² /Xa
	40 bw/Cy	70 H ² e ^{ll} /Xa
	41 cn	71 H ^{51c} /Sb
	42 cn bw	72 Ly/D ³
<u>Chromosome 1</u>	43 Cy	73 M(3)w/In(3R)C, e 1(3) e
12 B	44 Cy/1(2) ⁵⁰ (Nozawa)	74 PP ⁻ bx sr e ^s
13 B (Calif.U.)	45 Cy/1(2) ⁵⁰ (Nozawa)	75 ru h th st cu sr e ^s Pr ca/
14 BB	(selected 16	T(2;3)Mé
15 bb y ^{bb}	generations)	76 ru h th st cu sr e ^s ca/
16 Bx (Calif.U.)	46 Cy/conditioned	Mé LX
17 Bx ³	lethal (Yoshida)	77 Sb/1(3) (dominogene for vg)
18 Bx ^{50a}	47 dp ^x	78 (sbd ²)bx ³ Bxl/Xa
19 ec ct ⁶ g ² bb ¹ /C1B	48 dp bw	79 se ss ro
20 f BiBi/y	49 L ²	80 st
21 fu ^g /y v f car	50 M(2) 173/Cy al ²	81 ve
22 fw ⁵⁰¹	lt ³ L ⁴ sp ²	82 N-X/In (3R), 1(3R)
23 lz ³ /y f::	51 pr en	83 N-X ss ro/D1 ⁴⁹¹
24 m	52 S Sp ab ² ltd/NS,	84 N-X/Xa
25 rst ² /dl-49, y Hw	px sp	
m ² g ⁴	53 Str 3104	<u>Chromosome 4</u>
26 sd mc	54 vg	85 bt
27 v	55 vg ^{no}	86 ci ey ^R
28 w	56 vg ⁿⁱ	87 ey
29 w B	57 vg ^{np}	88 gvl ey ^R
30 w f	58 vg ^{ng}	89 Scn/ey ^D
31 w m	59 vg ^{Nw} Hia/T(2;3)	90 sv ⁿ
32 w ^a	SM Cy	

Chromosome UndeterminedInversion109 sc^{S1} B InS w^a sc⁸ (Muller-5)Translocations

110 T(2;4)d/Cy, pr

111 T(2;4)A29/Cy

Special StocksMultichromosomal

91 crossvein broken	112 w258-11 (Df w)	y w258-11/dl-49, y Hw m ²
92 eye mutant-1(D)	113 w258-14 (Df w)	y w258-14/dl-49, y Hw m ² g ⁴
93 eye mutant-2	114 w258-42 (Df w)	y w258-42/dl-49, y Hw m ² g ⁴
94 gap(w)	115 w258-45 (Df w)	y w258-45/dl-49, y Hw m ² g ⁴
95 Lobe-like	116 N264-72 (Df)	y N264-72/dl-49, y Hw m ² g ⁴
96 (ro)	117 N264-88 (Df)	N264-88/dl-49, y Hw m ² g ⁴
97 tanm6	118 N264-112 (In)	y N/dl-49, y Hw m ² g ⁴
	119 ct268-2b	ct268-2/dl-49, y Hw m ² g ⁴
	120 N264-8	N264-8/dl-49, Hw m ² g ⁴
	121 N ⁴⁹¹	N ⁴⁹¹ /dl-49, y Hw m ² g ⁴

98 y w; e
 99 vg; se
 100 w^{50k}; N-X In(3)/1(3), In(3)
 101 Cy/Pm, ds^{33k} (dp,b); H/C Sb
 102 S/Cy; D/Cx(2;3)
 103 vg/Cy; M(3)w/In(3), 1(3)
 104 vg^{no}; M(3)w/In(3)1(3)
 105 Muller-5; Cy/Pm; H/C Sb
 106 Muller-5; vg^{no}; H/C Sb
 107 vg; Sb H/1(3)
 108 vg; H/C Sb

Unanalyzed

122 abnormal wing
 123 intensifier of Bd

Virus ?124 CO₂-sensitive e (L'Héritier)

Tokyo: University of Tokyo, Faculty of Science, Botanical Institute
Laboratory of Genetics

Wild Stocks

1 Oregon
 2 Tokyo

4 ClB/eb ct⁶ g² bb¹
 5 v
 6 w
 7 w m f
 8 w^a

Chromosome 2

9 bw/Cy
 10 vg

Chromosome 1

3 B

Chromosome 3

11 cu

NETHERLANDSUtrecht: Genetisch Instituut der RijksuniversiteitNote: Only stocks not represented at Edinburgh are listed.Wild Stocks

1 Berlin Inzucht
 2 Utrecht

10 J/In(2L)+, 1(2)B
 11 J^{34e}

Chromosome 4

19 ey
 20 ey⁴

Chromosome 1Chromosome 3

12 Cx, D/In(3R)Mé Sb
 13 De/e
 14 D³Sb/e CL + CR
 15 D³H/Payne
 16 D1/In(3R)C 1(3)a
 17 ltr/e In(3R) In(3L)
 18 ltr/Mé Sb

Multichromosomal

21 Cy al² lt³ L⁴ sp²/
 Pm; Cx, D/
 In(3R)Mé Sb
 22 e/e; ey^D/+
 23 lgl; ltr/T(2;3)E

Chromosome 2

6 B1 L/Cy
 7 Cy al² lt³ L⁴ sp²/Pm
 8 dp^{50c}
 9 fes lt/Cy al² lt³ L⁴ sp²

NORWAYOslo: Universitetet, ArvelighetsinstituttetWild Stocks

- 1 Florida
2 Oregon
3 Oslo

Chromosome 1

- 4 B
5 Bⁿ/y
6 br ec rb
7 Bx³
8 car px-like
9 ec ct⁶ v g³/C1B
10 f
11 fa
12 fu⁸/y v f car
13 g f B/y
14 g^{37c}
15 g^{37f}
16 gt w^a/gt bb¹¹
17 lz/y
18 lz^{51d10}/y
19 m
20 na/sc⁸ dl-49 B
 w^a lz^s
21 od Bx^{r49k}
22 od car
23 sc cv lz/y
24 sc cv v f
25 sc w^{bwX}
26 sn² B/y
27 sw
28 w
29 w m f
30 w^a
31 w^{bwX}
32 w^{ch} wy
33 y
34 y ec ct v f
35 y pn
36 y sc w^e ec rb
37 y w

Chromosome 2

- 38 a px or
39 al² Cy, M L lt³/
 b pr Bl lt³ In Cy
 R L⁴ sp²
40 al dp b pr c px sp
41 b j pr cn
42 bw
43 bw mt^A vg
44 cg c/U

45 dp

46 dp^{51f26}

47 fj px sp

48 ho

49 j^{49k}50 j^{50e5}51 L²/Cy52 L⁵53 lt std/Cy, sp²54 M(2)l²/Cy, L⁴ sp²

55 M(2)z/Cy L

56 M(2)50j7/Cy, L⁴57 mr bs²/Cy, sp²

58 ms/Cy

59 Pm/Cy al² lt³ L⁴ sp²

60 pr en

61 pr⁴¹

62 rl

63 S^{37b}/Cy64 stw^D

65 vg

Chromosome 3

- 66 cp
67 cu kar
68 cv-c
69 D³ H/Payne
70 D1^K/Sb
71 dv/Mé
72 e⁴ wo ro
73 gl³
74 Gl Sb/LVM
75 jv Hn^r h
76 jv se
77 Ly/D³
78 M(3)bb/LVM
79 M(3)w/In(3R)C,
 e 1(3)e
80 ma fl
81 p^{42a}
82 Pr/In(3R)C, e
83 ra
84 ri
85 ru h th st cu sr
 e^s ca
86 se
87 se ss k e^s ro
88 st
89 st e²
90 tt wo
91 ve
92 W

Chromosome 493 ar ey^D94 ci ey^R95 ey²96 sv²Multichromosomal

97 Cy/Pm; H/C Sb

98 y; bw; e; ci ey^R

99 y; Cy/Pm; H/Sb C

Closed-X100 X^c, y/f BDeficiencies101 Df(1)N⁸/+102 Df(2)MS¹⁰/Cy pr103 Df(2)Px²; bw sp/Cy L104 Df(2)rl^{10a} lt cn/Cy prTranslocation

105 T(2;3)Cy

SOUTH AFRICA

Johannesburg: University of the Witwatersrand, Department of Zoology

Note: Stock list remains the same. See DIS-25, pp. 65-66.

SPAIN

Barcelona: Universidad, Centro de Genética animal y humana del Consejo Superior de Investigaciones Cientificas

Note: New stock list not received. See DIS-25, p. 66.

SWEDEN

Stockholm: University of Stockholm, Institute of Genetics

Wild Stocks

- 1 Algeria
- 2 Canton-S
- 3 Florida
- 4 Karsnäs
- 5 Oregon
- 6 Stäket
- 7 Tunnelgatan
- 8 Örebro

- 35 lrv-29a H₂/y Hw g In-49m
- 36 lrv-47b H₁/y sc⁸ f
In-49V wa
- 37 lz ♂ & y. = ♀
- 38 m
- 39 m f
- 40 Df(1)N⁸/+
- 41 od car
- 42 pn
- 43 rb

- 72 w^{col}
- 73 we
- 74 we ct⁶
- 75 wec²
- 76 wh
- 77 wi vb
- 78 w^r sc⁸ InS
- 79 w^{sat}
- 80 w^t
- 81 Xc² (closed-X)

Chromosome 1

- 9 B
- 10 Df B263-5 K/In(1)AM
- 11 Bⁿ In ♂ & y f: = ♀
- 12 bb
- 13 bb (Stern)
- 14 Bx²
- 15 car
- 16 car bb
- 17 cm ct⁶ sn³ ♂ &
y f: = ♀
- 18 cv
- 19 cv v
- 20 cv v B ♂ & y. = ♀
- 21 cv v B car bb ♂ &
y. = ♀
- 22 ct⁶
- 23 ctⁿ
- 24 ct⁶ v
- 25 ec
- 27 f
- 28 f B
- 29 f B Eb/f fu
- 30 f BB/In(1)AM
- 31 f fu ♂ & y. = ♀
- 32 fa
- 33 g² B
- 34 g² f

- 44 rb ct⁶
- 45 sc
- 46 sc Sc v f car/sc^{Sl} B InS
- 47 sc cv
- 48 sc cv v f
- 49 sc cv v f B
- 50 sc cv v car
- 51 sc ct⁶ car ♂ & y f: = ♀
- 52 sc t² v f Tu car ♂ &
y f: = ♀
- 53 sc t² v f ♂ & y f: = ♀
- 54 sc v f car/C1B
- 55 sc^{Sl} B InS wa^a sc⁸
- 56 v
- 57 w
- 58 w ct⁶
- 59 w sn³
- 60 w sn³ car
- 61 w f
- 62 wa
- 63 wa²
- 64 wa³
- 65 wa⁴
- 66 wa^{9a}V1
- 67 wbf f⁵
- 68 wbf²
- 69 w^{b1}
- 70 wch²
- 71 wco

- 83 y^{3P}
- 84 y ac sc pn ♂ & y f: = ♀
- 85 y ac sc pn w rb cm ct⁶
sn³ ras⁴ v m g f car/
y sc^{Sl} B InS
- 86 y B267-47
- 87 y ct⁶
- 88 y f car
- 89 y f (closed-X)
- 90 y f Eb/sc^{Sl} B InS
wa^a sc⁸
- 91 y Hw g In-49 m ♂ &
y f: = ♀
- 92 y rb
- 93 y rb ct⁶
- 94 y sc
- 95 y sc⁵
- 96 y sc¹⁵
- 97 y sc wa
- 98 y sc we ec rb
- 99 y w
- 100 y w ct⁶
- 101 y w sn³
- 102 y w f Bx²
- 103 y wa
- 104 y wa sn³ m f car
- 105 y we ec
- 106 y ec ct⁶ v f

107 y ct⁶ f
 108 y v g² f
 109 y^B
 110 Y³

Chromosome 2

111 b
 112 b j pr cn
 113 b pr vg a sp
 114 bw
 115 dp b
 116 dp pr px/Cy pr
 117 L²/Cy
 118 pr
 119 S/NS, px sp
 120 sp
 121 stw³
 122 vg

Chromosome 3

123 ca
 124 D³/InP
 125 ell
 126 e^s
 127 gl
 128 Hn^{r2}
 129 Hn^{r2} e^s
 130 ri
 131 ro
 132 ru h st p^D ss e^s
 133 ss
 134 ss²
 135 st
 136 st/In(3R)P
 137 st ss
 138 st ss ell
 139 se ss k e^s ro
 140 st ell
 141 ve h th
 142 ve h th st cu ss e^s ca

Chromosome 4

143 ci ey
 144 ey²
 145 ey^D/ci^D
 146 svⁿ

Multichromosomal and Translocations

147 B; Cy/+
 148 B; Cy/+; D³/+; svⁿ
 149 B; ru h st p^D ss e^s
 150 +; bw^{VA}/L² 1 ♂ & y f:=; bw^{VA}/L² 1 ♀
 151 y v; bw^{VA}/L² 1
 152 b; pr; bt
 153 +; Cy/+; D³/+; svⁿ ♂ & +.=; Cy/+; D³/+; svⁿ
 154 pr; ss
 155 bw; st
 156 L²/+, sp; th
 157 sp; th
 158 T(1;2)7/C1B
 159 T(1;2)Bbd⁷/Cy ♀ x M2e/Cy ♂
 160 T(1;2)Bld/Cy
 161 T(2;3)bw^{VDe4}/Cy
 162 y; pr; ss
 163 y; ro
 164 y^{Si} sc⁸ InS y^{3P}; al² Cy lt³ sp²/dp b Pm¹;
 ru h D³ InCxF ca/Sb In(3R)
 165 y ct⁶; ro
 166 y v f; bw^{VA}/L² 1 ♂ & y v f:=; bw^{VA}/L² 1 ♀
 167 +; svⁿ ♂ & +.=; svⁿ

SWITZERLAND

Basel: Botanische Anstalt der Universität

Note: New stock list not received. See DIS-25, p. 68.

NEW MUTANTS

Report of A. M. Clark

se^{51k} 3-26.0. In a single wild female taken near Cairns, Queensland. RK1.

Report of Margaret Edmondson

ab^{51g}: abrupt^{51g} Edmondson, 51g. 2-44.0. Spontaneous in al Cy pr Bl cn² L⁴ sp² chromosome. Allelic to ab, a strong allele like ab². Present in al Cy ab^{51g} pr Bl cn² L⁴ sp²/S Sp cn bw sp stock. RK2.

cv-c^c: crossveinless-c-curved Edmondson, 52e. 3-57.9. Spontaneous in rst⁵ In stock. Anterior crossvein of wing missing, posterior crossvein reduced to a stub. As in cv, veins L₃ and L₄ may show slight deltas at the tips. Wings spread and curved, slightly narrowed. Allelic to cv-c. Viability somewhat reduced by the tendency of the curved wings to get stuck in the food. Fertility fair, classification excellent. Present in homozygous cv-c^c stock. RK2.

dp^{52b}: dumpy^{52b} Edmondson, 52b. 2-13.0. Spontaneous. Like dp in wing character, but thorax usually unaffected. With dpTh shows strong vortices and "volcanos." Present in dp^{52b}/dpTh Cy Bl cn² L⁴ sp² stock. RK2.

ey-II^D: eyeless dominant in the second chromosome Edmondson, 51g. Probably ultraviolet induced. 2-62.7±. As in ey^D, the eyes may be much reduced in size, with frequent doubling of the antennae. Homozygous lethal. The lethal is either not identical with that in ey^D, or else not lethal when there are two doses of the eyeless mutant plus one normal dose. There is an additive effect as far as the visible character is concerned; ey II^D/+, ey^D/+ has more marked eyelessness than does either one alone. Recessive in the triploid ey II^D/+/+. Overlaps wild-type badly, especially in old vials. Present in ey II^D/Cy and pr ey II^D/Cy pr stocks. RK4.

fw^{51g}: furrowed^{51g} Edmondson, 51g. 1-38.3. Spontaneous. An extreme allele of fw, like fw^{35k}. Present in fw^{51g} & y f:= stock. RK2.

gl^{51k}: glass^{51k} Edmondson, 51k. 3-63.1. Spontaneous in X-chromosome lethal stock. Like gl and allelic to it. Present in homozygous gl^{51k} stock. RK2.

ld^{52a}: loboid^{52a} Edmondson, 52a. 3-100±. Spontaneous in y sc^{S1} In49 v sc⁶, c stock. Allelic to ld and like it. Present in v^{52a}, ld^{52a} stock. RK4.

na²: narrow abdomen² Edmondson, 51g. 1-45.2. Ultraviolet induced. Like na in visible characteristics and female sterility, and allelic to it. Present in na² & y sc^{S1} B In49 v stock. RK2.

saw: sawtooth Edmondson, 51g. 1-0.0+. Ultraviolet induced. Hairs along the wing edges serrated like the teeth of a saw. Wings may be warped, especially in the female. This is not covered by the sc¹⁹ⁱ duplication, and so the locus lies slightly to the right of sc; but I have not yet separated it from the sc locus in 2 crossovers between ac and sc and 60 between sc and pn. Fertility, viability, and classifiability excellent. Present in homozygous saw and saw, cn stocks. RK1.

saw²: sawtooth² Edmondson, 51f. 1-0.0+. Ultraviolet induced. Allelic to saw, but much more extreme. Wings strongly warped up or down, and papery in texture, especially in the female. saw character constant. Viability much reduced, as the flies get stuck owing to the warped wings. Fertility good, classifiability excellent. Present in saw² & C1B and saw² & y f:= stocks. RK2.

v^{52a}: vermilion^{52a} Edmondson, 52a. 1-33.0. Spontaneous. Like v and allelic to it. Present in v^{52a}, v^{52a}, c, v^{52a}, c, ss, and v^{52a}, ld^{52a} stocks. RK1.

Note: The following male and female sterility genes have all been cross-tested and found to be nonallelic, even though several are at nearly the same locus.

ms2.3: male-sterile 2.3 Edmondson, 50. 2-28.0+. Ultraviolet induced. Male sterile. ms2.6 is also in the same chromosome. Present in ms2.3 ms2.6 sp/Cy cn² L⁴ sp² stock.

ms2.4: male-sterile 2.4 Edmondson, 51. 2-47.9. Ultraviolet induced. Male sterile. Also present in the same chromosome is a spontaneous De. Present in De ms2.4 sp/Cy cn² L⁴ sp² stock.

ms2.5: male-sterile 2.5 Edmondson, 50. 2-54.8+. Ultraviolet induced. Male sterile. Also present in the same chromosome is fs2.5, a female semi-sterile. Present in fs2.5 ms2.5 sp/Cy cn² L⁴ sp² stock.

ms2.6: male-sterile 2.6 Edmondson, 51. 2-54.8+. Ultraviolet induced. Male sterile. In the same chromosome as ms2.3 Present in ms2.3 ms2.6 sp/Cy cn² L⁴ sp² stock.

ms2.7: male-sterile 2.7 Edmondson, 50. 2-54.8+. Ultraviolet induced. Male sterile. Also present in the same chromosome is ms2.11. Present in ms2.7 ms2.11 sp/Cy cn² L⁴ sp² stock.

ms2.8: male-sterile 2.8 Edmondson, 50. 2-55.6+. Ultraviolet induced. Male sterile. Present in ms2.8 sp/Cy cn² L⁴ sp² stock.

ms2.9: male-sterile 2.9 Edmondson, 51. 2-57.0+. Ultraviolet induced. Male sterile. ms2.12 is in the same chromosome. Present in ms2.9 ms2.12 sp/Cy cn² L⁴ sp² stock.

ms2.10: male-sterile 2.10 Edmondson, 50. 2-66.5+. Ultraviolet induced. Male sterile. A detrimental gene is present in the same chromosome at 2-46.3+. Present in detr-ms2.10 sp/Cy cn² L⁴ sp² stock.

ms2.11: male-sterile 2.11 Edmondson, 50. 2-68.0+. Ultraviolet induced. Male sterile. In the same chromosome as ms2.7. Present in ms2.7 ms2.11 sp/Cy cn² L⁴ sp² stock.

ms2.12: male-sterile 2.12 Edmondson, 51. 2-68.2+. Ultraviolet induced. Male sterile. In the same chromosome as ms2.9. Present in ms2.9 ms2.12 sp/Cy cn² L⁴ sp² stock.

fs2.2: female-sterile 2.2 Edmondson, 51. 2-22.0+. Ultraviolet induced. Female sterile, with normal appearing eggs in normal amounts. In the same chromosome are fs2.3 and a spontaneous semilethal, somewhat to the right of B1. Present in fs2.2 fs2.3 s-1 crs/Cy B1 cn² L⁴ sp² stock.

fs2.3: female-sterile 2.3 Edmondson, 5l. 2-47.5±. Ultraviolet induced. Female sterile with a visible mutant, narrow curved wings. Females lay no eggs. In the same chromosome as fs2.2. Present in fs2.2 fs2.3 s-1 crs/Cy B1 $cn^2 L^4 sp^2$ stock.

fs2.4: female-sterile 2.4 Edmondson, 5l. 2-48.5±. Ultraviolet induced. Female sterile with very few eggs. In the same chromosome is a digenic female sterility, with the two loci near Sp and near bw. Present in fs2.4 digenic-fs crs/Cy B1 $cn^2 L^4 sp^2$ stock.

fs2.5: female-sterile 2.5 Edmondson, 5l. 2-50.4. Ultraviolet induced. Female semisterile, with decaying brown embryos. A few larvae hatch normally. In the same chromosome as ms2.5. Present in fs2.5 ms2.5 crs/Cy B1 $cn^2 L^4 sp^2$ and fs2.5 ms2.5 sp/Cy $cn^2 L^4 sp^2$ stocks.

fs2.6: female-sterile 2.6 Edmondson, 50. 2-54.4. Ultraviolet induced. Female sterile with many normal-appearing eggs. Present in fs2.6 crs/Cy B1 $cn^2 L^4 sp^2$ stock.

fs2.7: female-sterile 2.7 Edmondson, 50. 2-55.2. Spontaneous. Female sterile with many collapsing eggs. Apparently there is some weakness in the vitelline membrane, as these eggs cannot be successfully dechorionated; when the chorion is removed the egg contents just flow out. Present in fs2.7 crs/Cy B1 $cn^2 L^4 sp^2$ stock.

fs2.8: female-sterile 2.8 Edmondson, 49k. 2-62.6. Ultraviolet induced. Female sterile which lays no eggs. Induced in the same chromosome as L^{ro} , which was reported in DIS-24. Also in the same chromosome were two different lethals and at least two different recessive visible mutations, all located in the middle part of the right arm of the chromosome. Present in $cn fs2.8 L^{ro} bw sp/Cy cn^2 L^4 sp^2$ stock.

digenic fs2.9: digenic female-sterile 2.9 Edmondson, 5l. Ultraviolet induced. This is a digenic female sterility, neither region of the chromosome being sterile by itself. One locus is in the vicinity of Sp, and the other in the right end near bw. Because of the presence of fs2.4 in the same chromosome, a more exact localization was not practicable. Present in fs2.4 digenic-fs crs/Cy B1 $cn^2 L^4 sp^2$ stock.

Report of A. A. Fernández Gianotti

fz^{50b}: frizzled^{50b} Fernández Gianotti. 2-42±. U. Spontaneous in San Miguel (Prov. of Buenos Aires) wild stock. Allelism not tested, but typical fz. RK3.

fz^{50c}: frizzled^{50c} Fernández Gianotti. 2-42±. U. Spontaneous in Tunuyán (Prov. of Mendoza) wild stock. Allele of fz^{50b}, but allelism with fz not tested.

ru^{50b}: roughoid^{50b} Fernández Gianotti. 3-0.0. U. Spontaneous in San Miguel (Prov. of Buenos Aires) wild stock. Allele of ru. RK2.

vg^{50c}: vestigial^{50c} Fernández Gianotti. 2-67. U. Spontaneous in Tunuyán (Prov. of Mendoza) wild stock. Allele of vg but highly variable in expression. RK1.

Report of M. M. Green

Ce²: Cell² 4-?. Spontaneous. Ocelli reduced or absent; ocellar and scutellar bristles absent; wing veins L3 and L4 converge, giving wing phenotype much like fu, although wing phenotype variable. Lethal homozygous. Allelism to cell based on phenotypes. RK2.

sc^{52c} su^{52c}-v: scute^{52c}, suppressor of vermilion 1-0.0. Spontaneous simultaneous occurrence of scute and suppressor of vermilion as single male in the cross v^{36f}/ras² v¹ m f; Cy/+; DcxF/Sb In(3R)C females x ras² v¹ m f male. Occurred in ras² v m f chromosome. Tests establish presence of v as well as allelism to sc¹ and su²-s. Rearrangement (inversion) probably present, since ras² v has not been separated from sc. RK1 for sc, RK5 for suppressor.

su^{51j6}-v: suppressor of vermilion 1-0.0. Spontaneous as a single male in the cross v f Bx¹ car female x Bx¹ male. Allelic to su²-s but not tested for suppression of sable. RK5.

Report of M. M. Gunson

bx^{51j} 3-58.7. Appeared in several individuals in an inbred wild-type stock originating from a single female taken near Melbourne. Very variable in expression. Penetrance 0.5% at 16° C, 1% at 20° C, and 29% at 25° C. RK5.

Report of Aloha Hannah

fw^H: furrowed^H Hannah, 50g. 1-38.3. Spontaneous as a single male in a cross of ci eye female x Canton male. Allele of fw and phenotypically like fw but with smaller rougher eyes, but not all furrowed; females phenotypically like males in v fw stock; bristles are bent like weak forked; best index bent alars and notopleurals. In v fw female x fw^H cross, eyes of F₁ females not grooved, not smaller, and only slightly rough; only one or two bristles bent. In the backcross v fw/fw^H x v fw, all females with eye and bristle characteristics of fw; 90% of v fw males with abnormal bent bristles, all with rough bulging eyes, but only 10% with furrows; 75% of fw^H males with bent bristles, and all with rough bulging furrowed eyes. In the reciprocal back cross v fw/fw^H x fw^H, fw^H/fw^H females more extreme than v fw/fw^H, with eyes furrowed in some cases, bristles thick and abnormal, post post alars and notopleurals most affected. May involve modifiers, because more of the v fw males have furrowed eyes than in the first backcross. RK2.

Report of Taylor Hinton

T(2;3)Hin102: translocation (2;3) of Hinton, no. 102 Hinton, 1949. Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis, Hinton, shows breaks as follows: 2L, at left break of In(2LR)40d; 2R, at 52E/F; 3R, at 85B and at 95C. The new order of parts is as follows: tip 2L-26D, 85B-tip of 3L; tip 3R-95C, 52E-41B, 26E-41A, 85B-95C, 52F-tip 2R.

T(2;3)Hin103: translocation (2;3) of Hinton, no. 103 Hinton, 1949. Detected by genetical means in an offspring of X-rayed In(2LR)IIDD. Salivary analysis, Hinton, shows breaks as follows: 2L, at left break of In(2LR)IIDD; 2R, at 59C, 3R, at 96D. The new order of parts is as follows: tip 2L-26D, 96D-tip of 3L; tip 3R-96D, 59C-41B, 26E-41A, 59C-tip 2R.

T(2;3)Hin107: translocation (2;3) of Hinton no. 107 Hinton, 1949.
Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis, Hinton, shows breaks as follows: 2L, at left break of In(2LR)40d and at 37B; 2R, at 42F, at 46A and at 53F; 3L, at 61E and at 80C. The new order of parts is as follows: tip 2L-26D, 80C-61E, 37B-41A, 42F-37B, 46A-42F, 61E-tip 3L; tip 3R-80C, 53F-tip 2R.

T(2;3)Hin111: translocation (2;3) of Hinton no. 111 Hinton, 1949.
Detected by genetical means in an offspring of X-rayed In(2LR)11DD. Salivary analysis, Hinton, shows breaks as follows: 2R, at 49A; 3R at 98B. A reciprocal exchange. The original inversion remains unaltered.

T(2;3)Hin114: translocation (2;3) of Hinton no. 114 Hinton, 1949.
Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis by Williams shows breaks in 2L at 36B and in 3R at 54. The order of parts, including the original inversion is as follows: tip 2L-26D, 41A-36B, 54-tip 3R; tip 3L-54, 35-26E, 41A-tip 2R.

T(2;3)Hin120: translocation (2;3) of Hinton no. 120 Hinton, 1949.
Detected by genetical means in an offspring of X-rayed In(2LR)40d. Salivary analysis, Hinton, shows breaks as follows: 2L, at 26A and at 30A; 2R at right break of In(2LR)40d; 3R at 96/97. A reciprocal translocation between 2R and 3R with a new inversion in 2L from 26A to 30A. The left break of the original inversion remains intact.

1(2)Fla.'42: 2nd-chromosome lethal from Florida wild stocks Ives, 1942.
Three different: nos. 2, 3, and 4.

1(2)M7: 2nd-chromosome lethal from Mass. wild Ives, 1951. Allelic to a lethal in In(2L)Cy.

1(2)PW8: 2nd-chromosome lethal from Pullman, Wash., wild Ives, 1951.
Male lethal; semilethal in females.

1(2)Fla-9: 2nd-chromosome lethal from Fla. wild Ives, 1951. Semilethal.

1(2)Mass.-10: 2nd-chromosome lethal from Mass. Ives, 1948. Homozygotes rare, have dark eyes and small wing and are sterile.

1(2)Mass.: 2nd-chromosome lethals from Mass. Ives, 1945, 1949, 1950.
Seven different, nos. 11-17.

1(2)PW: 2nd-chromosome lethals from Pullman, Wash. Ives, 1951. Twenty-six different, nos. 18-43.

1(2)WO: 2nd-chromosome lethals from Wooster, Ohio Ives, 1951. Twenty-five different, nos. 44-68.

1(2)SA: 2nd-chromosome lethals from South Amherst, Mass. Ives, 1951.
Seventy different, nos. 69, 71-138, 239.

1(2)NA: 2nd-chromosome lethals from North Amherst, Mass. Ives, 1951.
Thirty-one different, nos. 139-169.

1(2)BV: 2nd-chromosome lethals from Blacksburg, Va. Ives, 1951. Sixty-six different, nos. 170-189, 191-197, 199-237.

1(2)BV238: 2nd-chromosome lethal from Blacksburg, Va. no. 238 Ives, 1952. Allelic to lethal in In(2L)Cy.

1(2)CP241: 2nd-chromosome lethal from Canonsburg, Pa. Ives, 1951. Allelic to lethal in In(2L)Cy.

Report of P. T. Ives

e⁵¹⁸: ebony Ives. Found as one wild female in a collection from North Amherst, Mass. Similar to sooty, with usually no heterozygous effect. Excellent viability. RK1.

Roi: Rough eye Ives, 47kl8. 2-left arm. Spontaneous occurrence in a chromosome carrying In(2L)t, from which it has not separated. Thus it serves as a dominant marker for that inversion. Facets irregularly rounded and some enlarged, eye sometimes bulging. Roi/Roi is lethal but Roi/S is viable. The original In(2L)t chromosome was not lethal when homozygous. Classification and viability good. RK3A.

sho: shovel Goodsmith, 49K. 2-left arm. Spontaneous in a chromosome carrying In(2L)t, In(2R)NS. Associated with In(2L)t. Completely recessive, wings short and rounded, more or less shovel proportioned. Good viability and classification. RK3A.

vg^{51h25}: vestigial Ives. Derived from a collection from a wild population in Blacksburg, Va., as one +/vg male. Wings seem a little larger than vg. Good viability. RK1.

Report of R. C. King

Bg^{52c}: Bag^{52c} King, 52c. 1-51.6. From egg of female exposed to thermal neutrons. Crossing over with B is 15 out of 251, or 6.0%, placing mutant at approximate locus of Bg. Male lethal. Like Bg^{49h}. Often overlaps wild-type. RK2L.

lz^{52c28}: lozenge^{52c28} King, 52c28. 1-27.7. From sperm of Canton-Special male fed Hg³⁰⁰ and exposed to thermal neutrons. Eye mottled in appearance, yellowish brown, darker at rim, facets fused. Males semisterile with missing claws, although pulvili and endopodia are normal. Third antennal segment 0.9 normal length, 0.8 normal width. lz^{50e30}/lz^{52c28} females resemble lz^{50e30}. RK1.

pn^{51b}: prune^{51b} King, 51b. 1-0.8. From sperm of Canton-S inbred male fed as adult on a medium containing P³². Like normal prune. RK1.

vs^{52a}: vesiculated^{52a} King, 52a. 1-16.3. From sperm of Canton-S inbred male fed as adult on a medium containing P³². Wings wrinkled and blistered. Viability 0.4 that of wild-type. Does not overlap wild-type at 21° C. RK1.

w^{52a}: white^{52a} King, 52a. 1-1.5. From sperm of Canton-S inbred male fed as adult on a medium containing P³². Like normal white. RK1.

Report of George Lefevre, Jr.

Additional information is now available about some short insertional translocations containing the white locus (reported in DIS-25, p. 71). An

additional duplication has been produced and studied.

Dp(1;3R)w^{50kl1} Lefevre. A section of X chromosome, extending from approximately 1D3 through 3C4, inserted in 3R near Section 89. Covers pn, w, and rst, but not sc, spl, or dm. (Erroneously said not to cover pn in DIS-25.)

Dp(1;2R)w^{51b7} Lefevre. A section of X chromosome extending from 3C2 at least through 3D2 (derived from w^{m4}) inserted in 2R.

Dp(1;4)w^{51c20} Lefevre. A short segment of X chromosome extending no more than from 3C2 to 3C6 (derived from w^{m4}) inserted in the 4th chromosome.

Dp(1;4)w^{52a25} Ratty. A mottled duplication covering pn and w, but not sc or spl, derived by irradiation of rst⁵, inserted in the 4th chromosome.

N^{50kl1}: Notch^{50kl1} Lefevre, 50k. A deficiency extending from approximately 1D3 through 3C3, produced simultaneously with Dp(1;3R)w^{50kl1} (see above), but slightly longer than the duplication. The deficiency is too long (about 75 bands) to survive even heterozygously, except when accompanied by the duplication, but survives as a male when Dp(1;2R)w^{51b7} is also added.

Report of E. B. Lewis

Ubx¹³⁰: Ultrabithorax-130 Lewis, 511. In(3LR). P.N.A.S. (in press). From X-rayed e^s male. Distal segment of the haltere enlarged to about twice its normal volume and slightly hairy. Excellent viability and no overlap of wild-type. Behaves as an extreme allele of bx and bxd. Homozygous lethal. Salivary-gland chromosomes show a complex rearrangement involving five breakage points in regions 61A-C, 74, 89D-E, 93B, and 96A. New arrangement in 3 is: 3L tip to 61A-C / 96A to 93B / 89DE to centromere to 74 / 61AC to 74 / 89DE to 93B / 96A to tip of 3R. Useful as third-chromosome balancer. RK3A.

Report of Helen U. Meyer

Cur: Curl Erickson and Meyer, 51c. 3-66.0±1. Spontaneous in a third chromosome of unknown derivation. Curl acts as lethal when homozygous; heterozygotes have curly wings, resembling those of the second-chromosome dominant Cy. Presence of Sb or Bl moderates the expression of Curl, just as Bl moderates that of Curly. The wings of Curl flies have a parchment-like texture, which facilitates classification when Sb or Bl are also present. Present in Cur/Mé, Ins ri Sb¹ stock. RK1.

dp^{T-51b}: Truncato^{51b} Meyer, 51b. 2-13.0. Ultraviolet induced. Lethal when homozygous. Compound dp^{T-51b}/dp has short, truncated wings, but no vortices on thorax. Compound dp^{T-51b}/dp^T lethal. Compound dp^{T-51b}/dpTh (the thoraxate with Curly) is near-lethal. Only one sole survivor found; showed vortices, rumpled hair on thorax; the shortened wings were spread. The male was very weak and died soon. Induced in the same chromosome was an allele of Star (see below). RK2.

e^{50a}: ebony^{50a} Meyer, 50a. 3-70.7. Spontaneous recurrence of ebony. Phenotype of homozygote closer to ebony than to sooty. Present in crs/Cy Bl cn² L⁴ sp²; e^{50a} stock. RK1.

e^{s-52h}: sooty^{52h} Akiyama and Meyer, 52h. Second spontaneous recurrence

of sooty within InCXF. Present in Mé, InL InRC e 1(3)e/ru h D Sb e^{s-52a} InCXF stock (see Bloomington stock list). RKL.

N⁴⁷ⁱ: Notch⁴⁷ⁱ Meyer, 47i. Ultraviolet induced. About 30% expression in heterozygotes. Compound with split gives characteristic bristle but not roughened eye effect; compound with facet does not give a phenotypic effect. Homozygous lethal. RK4 as mutant.

N^{5ld}: Notch^{5ld} Byers, 5ld. Ultraviolet induced. Reported in DIS-25; now localized at facet locus. Compound with facet shows characteristic effect; no phenotypic effect in compound with split. Homozygous lethal, expression in heterozygotes good. RKL as mutant.

(The results with these two Notches suggest that they are pseudoalleles, i.e., in non-identical but very nearby loci.)

ri^{5lk}: radius incompletus^{5lk} Meyer, 5lk. 3-47.1. Spontaneous. Very similar to, but somewhat milder than, ri. Present in y sc⁸ N⁴⁷ⁱ In49/ct⁶ oc; ri^{5lk} stock and in several other forms (see Bloomington stock list). RKL.

S^{5lb}: Star^{5lb} Meyer, 5lb. 2-1.3. Ultraviolet induced, in the same chromosome as the dp^{T-5lb} mentioned above. Homozygous lethal. Compound S^{5lb}/ast shows all the characteristics described by Lewis for S/ast: extremely small and narrow eye, with glasslike effect; distal ends of veins L2 to L5 missing to various degrees. Compound S^{5lb}/+ shows distinct rough eye effect, but does not reduce size of eye. Present in S^{5lb} dp^{T5lb} crs/al² Cy cn² (InCyl&R) stock. RKL as mutant.

ss^{a-52g}: spineless-aristapedia^{52g} Meyer, 52g. 3-58.5. Spontaneous. Very extreme allele; bristles and body hair reduced to such degree that males sometimes lack sex combs. Aristae are leg-like, with claws. Homozygotes weak; males sterile, probably owing to physiological weakness; females only semifertile. Present in stock h ss^{a-52g}/ru h D Sb InCXF. RK3.

Report of George H. Mickey

ci^{52g}: cubitus-interruptus^{52g} Mickey, 52g11. 4-0. Arose from X-rayed males. RK5L.

f^{5lb}: forked^{5lb} Mickey, 5lb25. 1-56.7. Arose as a single male from a female treated as 2-hour egg with cold shock (-4° C) for 1 hour. Phenotypically like f. Viability and fertility good. RKL.

fw^{5lh}: furrowed^{5lh} Mickey, 5lh31. 1-38.3. Arose from third-instar male larva treated for 25 minutes at -10° C. Eye surface medium folded, bristles gnarled, wings thin and spread. Late hatching; both viability and fertility reduced. RK2.

lz^{52e}: lozenge^{52e} Mickey, 52e15. 1-27.7. Arose from X-rayed male. Eyes slightly reduced, color brown-red, darker at rim, surface glossy. Male viable and fertile; female sterile. RKL.

N^{52e}: Notch^{52e} Mickey, 52e15. Df(1)N. From X-rayed male. Sterile. Lost.

r^{50e}: rudimentary^{50e} Bakkum, 50e. 1-54.5. Spontaneous in rucuca/Mé stock. Less extreme than r. Semilethal and female sterile. RK2.

Report of Helen Redfield

se^{5lj}: sepia^{5lj} Hungerford, 5lj. This mutant appeared in a number of individuals among the F₂ of a wild stock collected by David A. Hungerford in Abington, Pennsylvania. It is an allele of sepia, and is not due to contamination since no stock containing sepia, or any allele of sepia, was at that time in the laboratory. Rkl.

w^{bf}→+ : buff reverted to wild-type Redfield, 5le. Our ordinary stock cultures of w^{bf} f⁵ have shown for several years an additional character which is manifested by a large proportion of individuals with melanotic tumors. From one mass culture of this stock two flies were obtained, one male and one female, which were forked⁵, but whose eyes were not buff but wild-type red in color. At a later date one more such male appeared in this culture; this fly was presumably from the next generation. The female proved to be heterozygous for the new mutant; a stock was derived from her. The new color is identical with normal wild-type eye color. The larval Malpighian tubules of the mutant are deep yellow, as in other stocks with wild-type eyes; they are quite different from the light, practically white, Malpighian tubules of the w^{bf} f⁵ stock from which the mutant came. The facts that the presumed reversion from its first appearance (1) was homozygous for forked⁵, and (2) gave the same large percentage of tumors as the w^{bf} f⁵ stock, eliminate the possibility of contamination. This case, then, probably represents a reversion of buff to wild-type. The alternative possibility of the presence of some type of specific suppressor is being investigated; it is ruled out unless the assumed suppressor is close to the white locus. It is of incidental interest that selection in this stock for over a year both for and against the presence of tumors has had no appreciable effect on the proportion of flies showing the tumors. Rkl.

w^{5la}: white^{5la} Redfield, 5la. Three white-eyed, yellow-bodied males appeared in a brother-sister mating of our inbred "y Oregon-R R" strain. A stock was established. The mutation represents a new allele of white, and is a typical white. It is of value because of its presence in a genetic environment that is relatively pure owing to long-continued brother-sister inbreeding. Rkl.

y^{5lg}: yellow^{5lg} Redfield, 5lg. In a brother-sister mating of our inbred "f Oregon-R I" strain appeared two males which were forked but also yellow. In addition to the yellow body color, they had black hairs and bristles, and otherwise answered the description of yellow⁵. The mutant was shown to be due to an allele of yellow; it was kept, since it appeared in the inbred stocks. Rkl.

Report of Istituto di Genetica, Universita di Pavia

cd^{45j}: cardinal^{45j} Peschiera. 3-75.7. Same as cardinal-similis (DIS-21, p. 66).

Report of Johns Hopkins University

Tft: Tufted Ritterhoff, 52f25. 2.48.5-54.5. From X-rayed Oregon-R female, appearing as one male. In the heterozygote Tft, the scutellar, postalar, and dorsocentral bristles are greatly increased in number, up to four per dorsocentral, two per postalar, and five per scutellar bristle. Thus the total number of bristles in these three groups may be increased from the normal number of 12 to as many as 42. The scutellum is greatly reduced,

the furrow between it and the thorax being absent. There are bristles at the junction of the thorax and abdomen. In the homozygote, Tft/Tft, the bristles are reduced in length and appear to be in a tighter cluster, owing to the fact that the scutellum is reduced to a nub. All other bristles are normal in number in the heterozygote and homozygote. Hairless (H) reduces the expression of Tft slightly. Viability is reduced in the homozygote, and fertility is greatly reduced. Viability and fertility are not affected in the heterozygote. The expressions of Tft/+ and of Tft/Tft are unaffected by a change of temperature from 25° C to 28° C. At 18° C the expression of Tft also appears unaffected by temperature. Tft is at present being tested for allelism to pys (polychaetous, 2.52±).

Report of Zoologisches Institut der Universität, Göttingen

a(1)48: abnormal abdomen of chromosome 1 Zimmermann, 48. Spontaneous in Berlin-normal stock. Penetrance 0%. Increases predetermining and in zygotes the penetrance of a(2)48 and a(3)48. Viability and fertility good. RK5.

a(2)48: abnormal abdomen of chromosome 2 Zimmermann, 48. Spontaneous in ClB stock. Penetrance 7.0%. Predetermining and in zygotes acting. The irregularities involve more frequently the anterior segments of the abdomen. Viability and fertility good. RK5.

a(3)48: abnormal abdomen of chromosome 3 Zimmermann, 48. Spontaneous in ClB stock. Penetrance 2.5%. Only predetermining. The irregularities involve more frequently the posterior segments of the abdomen. Viability and fertility good. RK5.

a(1)50: abnormal abdomen of chromosome 1 Zimmermann, 50. Spontaneous in w; j; e; ey stock. Penetrance 1%. The irregularities involve more frequently the anterior segments of the abdomen. Increases predetermining only the penetrance of a(2)48 and a(3)48. Viability and fertility good. RK5.

a(2)50: abnormal abdomen of chromosome 2 Zimmermann, 50; lost. Spontaneous in w; j; e; ey stock. Penetrance 6%. Only predetermining. RK5.

a(1)51: abnormal abdomen of chromosome 1 Zimmermann, 51. Spontaneous in white stock. Penetrance 2%. Only predetermining. The irregularities of this phenotype lie in the mean still more in front than those of a(2)48 or a(1)50. Viability and fertility good. RK5.

a(2)51: abnormal abdomen of chromosome 2 Zimmermann, 51; lost. Spontaneous in white stock. Penetrance 50%. Predetermining and in zygotes acting. RK5.

A(2)51: abnormal abdomen of chromosome 2 Zimmermann, 51. Spontaneous in L Cy/++; C Mé Sb C/++ stock. Penetrance 0%. Increases the penetrance of a(2)48 and a(3)48. RK5.

In(1)ne: Inversion (1) narrow-eyed H. J. Becker, 1950, from X-rayed Berlin-normal male. Homozygous flies show narrow eyes. Eye reduction about halfway between B and wild-type. Heterozygotes almost completely overlap wild-type. Viability and fertility good. Salivary chromosomes show breaks at about 10A and 16D.

STOCK LISTS

AMHERST, MASSACHUSETTS: AMHERST COLLEGED. pseudoobscura

Wild strains homozygous for different gene arrangements in the third chromosome:

Pinon Flat, California: Standard (14 strains)
Chiricahua (11)
Arrowhead (3)

MutantsChromosome 3Chromosome 1

or Bl Sc pr/lethal Cuernavaca

tb b v se

Chromosome 4

y sn v co sh

in hk j Cy in hk j

w⁵

in hk j Cy inversion/+

w⁷ dg sp

Multichromosomal

se ll sp tt

Chromosome 2

Ba; or; Cy

up bx Ba gl inversion/lethal

v m; tg

gl

Other Species

The following six species were collected locally in 1952 and are being carried until May 1953.

D. algonquin

D. melanica

D. funebris

D. narragansett

D. mahican

D. robusta

BAR HARBOR, MAINE: ROSCOE B. JACKSON LABORATORY

D. ananassae: Bar Harbor

D. virilis: ec cv v mt w

D. busckii: Bar Harbor

D. virilis: ec si² ap^{40e}

D. simulans: v

BERKELEY, CALIFORNIA: UNIVERSITY OF CALIFORNIA

D. simulans

D. virilis: Pasadena 10^k

D. simulans: Florida

Pasadena wild
scarlet

BLACKSBURG, VIRGINIA: VIRGINIA POLYTECHNIC INSTITUTED. robusta

(Stock list unchanged. See DIS-25, p. 80.)

CHICAGO, ILLINOIS: LOYOLA UNIVERSITY

D. virilis: Pasadena

COLD SPRING HARBOR, NEW YORK: CARNEGIE INSTITUTIOND. simulans

1 ah b py sd pm
2 v 4, ca/+q cao

3 b

4 v

D. virilisWild Stocks

0 Americana

1 China-a

Chromosome 13 ec c v si²4 mt⁴ w Bx

6 mt f

7 sc v ap

8 w Bx

9 w^D r d10 y^{re}Chromosome 2

11 R Pu

Chromosome 3

12 G cn

13 sv tb

Chromosome 514 B³

15 es dc

16 st mk

17 sv⁵Chromosome 6

18 gl

Combined

19 gl; R

20 R; B

21 R; G; B

22 tb; Gp²; pe23 tb; Gp²; ru i24 va; px²25 y; tb; px² stUnstable Genes27 mt³ gamma28 mt³ gamma, S₁29 mt³ m^a30 mt³ R31 mt³ S₃32 L⁴

33 eyeless Maas mutant

34 Bodenstein

EVANSTON, ILLINOIS: NORTHWESTERN UNIVERSITY

D. affinis: Wilmette, Ill., 1950

D. buskii: Evanston, Ill., 1949

D. funebris: Wilmette, Ill., 1952

D. hydei: Wilmette, Ill., 1950

D. hydei: Lafayette, Ind., 1950

D. immigrans: Wilmette, Ill., 1952

D. immigrans: net mutant (Wilmette, Ill., 1949)

D. simulans: Evanston, Ill., 1949

KNOXVILLE, TENNESSEE: UNIVERSITY OF TENNESSEE

D. ananassae: Haiti (1 strain)

D. funebris: Tennessee (3)

D. hydei: Tennessee (3)

D. immigrans: Tennessee (3)

D. nigromelanica: Tennessee (1)

D. prosaltans: Jamaica (1)

D. robusta: Tennessee (2)

D. sturtevantii: Haiti (1)

D. willistoni: Cuba (4); Florida (1)

LINCOLN, NEBRASKA: THE UNIVERSITY OF NEBRASKA, ZOOLOGY DEPARTMENT

"D. affinis subgroup": D. affinis, D. algonquin, D. athabasca (mahican),
D. narragansett

D. melanica (melanica and paramelanica)

D. robusta (wild and reduced-eyes mutant strains)

LOS ANGELES, CALIFORNIA: UNIVERSITY OF CALIFORNIA, BOTANY DEPARTMENT

D. busckii
D. immigrans
D. occidentalis

D. pinicola
D. simulans

D. pseudoobscura

Wild Strains: Structurally homozygous third-chromosome-inversion types derived from wild females collected at five stations equidistant along a fifteen-mile transect in the San Jacinto Mountains of Southern California. New strains being added.

Standard

Keen Camp (7)
Thomas Mt. (4)
Vandeventer Flat (10)
Santa Rosa Mt. (7)
Piñon Flat (18)

Chiricahua

Keen Camp (7)
Thomas Mt. (6)
Vandeventer Flat (9)
Santa Rosa Mt. (4)
Piñon Flat (12)

Arrowhead

Keen Camp (4)
Thomas Mt. (4)
Vandeventer Flat (3)
Santa Rosa Mt. (2)
Piñon Flat (11)

Treeline

Piñon Flat (1)

Pikes Peak

Vandeventer Flat (1)

Santa Cruz

Thomas Mountain (1)

5 strains of the "sex ratio" (SR) inversion of the X chromosome derived from wild males are also being maintained.

Wild Strains: Genetically homozygous (isogenic) third chromosomes from wild males collected in the San Jacinto Mountains derived by appropriate genetic crosses. Background heterogeneous for or pr and Lb or/In(Cuernevaca) lethal strains used in their derivation. (R.H.T. Mattoni)

Standard

Piñon Flat (4)
Vandeventer Flat (7)
Keen Camp (6)

Chiricahua

Piñon Flat (4)
Vandeventer Flat (8)
Keen Camp (4)

Arrowhead

Piñon Flat (6)
Vandeventer Flat (7)
Keen Camp (6)

Treeline

Piñon Flat (4)
Vandeventer Flat (5)
Keen Camp (3)

Pikes Peak

Piñon Flat (3)
Vandeventer Flat (8)
Keen Camp (2)

Wild Strains: Mather Background. Third Chromosomes from Piñon Flat and Keen Camp transferred to a background of Mather X, II, IV, and V chromosomes. (D.F. Mitchell)

Piñon Flat Standard III, Mather X, II, IV, and V-4

Piñon Chiricahua III, Mather X, II, IV, V-4

Keen Camp Standard III, Mather X, II, IV, V-2

Keen Camp Chiricahua III, Mather X, II, IV, V-2

Lethal Strains: Nonallelic third-chromosome lethals derived from wild males.
Balanced over LB or, In(Santa Cruz). (R.H.T. Mattoni)

Piñon Flat (10 strains)

Vandeventer Flat (26)

Mutants: New stocks being added (F. Ball)

Chromosome 2

1 gl

5 or Sc pr cv

6 or Bl Sc pr/lethal, In(Cuernavaca)

7 Lb or/lethal, In(Cuernavaca)

Chromosome 3

2 or

3 pr

4 or pr

Multichromosomal

8 Ba; or; cy

MINNEAPOLIS, MINNESOTA: UNIVERSITY OF MINNESOTA

D. funebris

D. pseudoobscura: Wild strain, Standard gene arrangement, Piñon Flat
Mutant strain, Chromosome 2, gl

D. persimilis: Wild strain, Standard gene arrangement, Sequoia
Mutant strain, multichromosomal, or Cy

NEW HAVEN, CONNECTICUT: YALE UNIVERSITY, OSBORN ZOOLOGICAL LABORATORY

D. americana americana (Independence)

D. americana americana (Western)

D. americana texana (Florida)

D. ananassae (Cristobal)

D. funebris (Rexburg, Idaho, 2)

D. funebris (Stockholm)

D. funebris (white of Kiil)

D. gibberosa (S. Mexico)

D. hydei (Yucatan-4)

D. hydei (N x vr, Spencer)

D. laticola (Fairbank, Minn.)

D. melanica (Walnut C)

D. montana (Cottonwood Canyon)

D. nebulosa (Georgetown)

D. novamexicana

D. repleta (New Haven)

D. sellata (Chilpancingo)

D. simulans (S. Africa)

D. spiniotheca

D. takahashii (Formosa)

D. virilis (Japan)

D. willistoni (Quirigua)

D. yampa (Colorado)

NEW YORK, NEW YORK: COLUMBIA UNIVERSITY

(Th. Dobzhansky)

D. persimilis

Wild: 16 strains

Chromosome 2

Multichromosomal

Chromosome 1

3 Delta ca

5 or Cy

1 Pt

4. ss^a

2 se

D. prosaltans

Wild: 5 strains

Chromosome 2Chromosome 3Chromosome 1

1 wy/sc

2 s m ct/fa/transl I-II

3 w m y/fa/transl I-II

4 m y se

5 g

6 sex ratio/m y se

7 Pm Guatemala

8 Gf Pm

9 Bd Cy

10 L px

11 px

12 grv

13 Pm S Cy/inversion/lethal

14 Delta ar/

inversion/

lethal

15 ar

D. pseudoobscura

Wild strains homozygous for different gene arrangements in the third chromosome:

Piñon, California:

Standard (12 strains)

Chiricahua (12)

Arrowhead (11)

Mexico:

Chiricahua (12)

Wild strains collected in 1950:

Mather, California (12)

Lehman Cave, Nevada (14)

Mono Lake, California (28)

Wild strains (geographical): 33 strains

Chromosome 11 Pt w^e mg

2 y sn v co sh

3 se ll sp tt

4 sex ratio/y sn v co sh

5 Homoterminal sex ratio

11 or px

12 or Sc pr cv

13 or Bl Sc pr (standard)/lethal

Cuernavaca

14 Em/intersex I

15 Em/intersex II

16 L or (Santa Cruz)/lethal Cuernavaca

Chromosome 2

6 ca

7 gl

8 up bx Ba gl (inversion)/lethal

Chromosome 4

17 in hk j Cy/in hk j

18 in hk j Cy(inversion)/lethal

Chromosome 3

9 or

10 or pr

Multichromosomal

19 Ba or Cy

D. willistoni

Wild: 28 strains

Chromosome 1

1 sc In se re(Belem)/y (Rio)

2 w^e sc In ru(Belem)/y (Rio)3 w^e loz pn(Belem)

4 sn y pn ru(Belem)

5 w^e sc ct pn(Belem)/red st (Rio)

6 m

7 sc

8 ct

Chromosome 2

9 S Hk abb bw/Hk abb bw

10 S Hk abb bw(inversion 207)/lethal

11 abb bw

12 ca

Chromosome 3

13 Delta Ri

14 Delta pink (inversion 133)/lethal

15 pink

16 ld bx

17 ebony

Other Species

D. athabasca

D. azteca (2 strains)

D. bocainensis

D. capricorni

D. cardinoides

D. duncani

D. equinoxialis

D. fumosa

D. gibberosa

D. miranda

D. mirim

D. montana

D. montium

D. nebulosa (2 strains)

D. neocardini

D. pallidipennis

D. paulistorum

D. polymorpha

D. sturtevantii

(2 strains)

D. tropicalis (2 strains)

OAK RIDGE, TENNESSEE: OAK RIDGE NATIONAL LABORATORY, BIOLOGY DIVISIOND. virilisWild Strain

Pasadena

Chromosome 11 mt⁷2 v^{48b}

3 w

4 y^{40a} ec ch dyChromosome 3

5 sv

Chromosome 4

6 cd

Chromosome 5

7 a

8 B⁴9 B⁴ pe^{Jap}10 es B³11 es pe^{Jap}

12 pe

13 pe^{Jap}14 ru pe^{Jap}15 st B³16 st es pe^{Jap}

17 st mh

18 st pe^{Jap}Chromosome 6

19 gl

Multichromosomal20 b; pe^{Jap}

21 b; tb gp; cd; pe

22 b; t; cd; pe

23 b; t; pe^{Jap}

24 cd; es pe

25 cn; px; pe

26 pe; gl

27 sv; pe

28 v^{48a}; pe29 v^{48a}; es pe

Also various peach-mottles caused by rearrangements involving chromosome 5

PHILADELPHIA, PENNSYLVANIA: INSTITUTE FOR CANCER RESEARCH
AND LANKENAU HOSPITAL RESEARCH INSTITUTE

D. busckii: wild-type (Abington, Pennsylvania)

D. flavorepleta: wild-type

D. funebris: wild-type A

wild-type B

w (from B)

D. gibberosa: wild-type

- D. immigrans: wild-type (Abington, Pa.)
 D. mirim: wild-type
 D. pseudoobscura: wild-type (Piñon Chiricahua)
 P w^{HR} mg² s
 P w^e mg² s
 Ssc/sr 1; Y & P w^{HR} mg² s
 D. robusta: wild-type (Abington, Pa.)
 D. simulans: wild-type (South Africa)
 net pm (b, py, sd)
 D. willistoni: wild-type (Belem)

PITTSBURGH, PENNSYLVANIA: UNIVERSITY OF PITTSBURGH

D. persimilis

<u>Wild Strains (California)</u>	<u>Chromosome 1</u>	<u>Chromosome 3</u>
Jacksonville (16 strains)	Pt	or
Mather (32)		
Mono Lake (20)	<u>Chromosome 2</u>	<u>Chromosome 4</u>
Timberline (18)	ca	
	vs	Cy

SALT LAKE CITY, UTAH: UNIVERSITY OF UTAH

- D. simulans: v

UPTON, NEW YORK: BROOKHAVEN NATIONAL LABORATORY

D. simulans

- Lima, Peru a¹⁰
 New Orleans-51
 South Africa

AUSTRALIA

Brisbane: The University of Queensland, Department of Zoology

- | | |
|-----------------|--------------|
| D. ananassae | D. repleta |
| D. hydei | D. serrata |
| D. immigrans | D. simulans |
| D. lativittata | D. subnitida |
| D. melanogaster | |

Melbourne: University of Melbourne, Department of Zoology

- D. ananassae: single female strain from Cairns, Queensland
 D. busckii: Melbourne
 D. funebris: Melbourne
 D. hydei: strains from Melbourne and from Auckland, New Zealand

- D. immigrans: single female strains from Melbourne and from Brisbane, Queensland
D. lativittata: Marysville, Victoria
D. polypori: Marysville, Victoria
D. setifemur: from a single female taken at Cairns, Queensland, and inbred by single-pair matings for 15 generations
D. simulans: single female strains from six localities in S.E. Australia
D. spinofemora: University of Texas

AUSTRIA

Vienna: Institut f. allgemeine Biologie d. Universität

Note: Stock list unchanged. See DIS-24, p. 69.

BRAZIL

Curitiba, Paraná: Universidade do Paraná, Faculdade de Filosofia, Ciências e Letras, Laboratório de Genética

- D. ananassae: Antonina (6 strains), Morretes (4), Paranaguá (2), Passagem (7), Ilha do Mel (1), in the state of Paraná; Ilhéus (2) and Salvador (3), in the state of Bahia; Porto Alegre (1), in the state of Rio Grande do Sul; Recife (1), in the state of Pernambuco; Rio de Janeiro (1), in the Federal District; Uaupés (4), in the state of Amazonas
D. auraria: Hangchow, China (1 strain)
D. betari: Curitiba (1 strain), in the state of Paraná; and Gaspar (1), in the state of Santa Catarina
D. equinoxialis: Rio Negro (1 strain), in the state of Amazonas
D. hydei: Curitiba (5 strains) and Iratí (2), in the state of Paraná
D. immigrans: Morretes (1 strain) and Curitiba (3), in the state of Paraná; Boa Esperança (2), in the state of Minas Gerais; Williamston (1), North Carolina, U.S.A.
D. montium: Polymorphic, light, and dark strains. Paranaguá (3 strains), Morretes (3), Iratí (1), and Antonina (1), in the state of Paraná; Gaspar (3), in the state of Santa Catarina
D. nebulosa: Lapa (1 strain), in the state of Paraná; Boa Esperança (1), in the state of Minas Gerais; Del Rio (1), Texas, U.S.A.
D. paulistorum: Rio Negro (1 strain), in the state of Amazonas; and Vila Atlântica (1), in the state of São Paulo
D. repleta: Curitiba (1 strain), in the state of Paraná
D. simulans: Iratí (1 strain), Curitiba (3), Ilha do Mel (2), and Paranaguá (2), in the state of Paraná; Boa Esperança (2), in the state of Minas Gerais; Gaspar (1), in the state of Santa Catarina; and Pirassununga (2), in the state of São Paulo
D. tropicalis: Palmas (1), in the state of Goiás; and Rio Negro (1), in the state of Amazonas
D. willistoni: Rio Negro (1), in the state of Amazonas; and Mogí das Cruzes (1), in the state of São Paulo

Rio de Janeiro, D.F.: Universidade de Brasil, Faculdade N. de Filosofia, Centro de Pesquisa de Genética

- D. ananassae: Rio de Janeiro, D.F.
D. campestris: Pirassununga (State of São Paulo)
D. cardini: Cuba

- D. hydei*: Rio de Janeiro, D.F.
D. immigrans: Pirassununga (State of São Paulo)
D. mediopunctata: Pirassununga (State of São Paulo)
D. mediotriata: Pirassununga (State of São Paulo); Rio Negro (State of Amazonas)
D. melanogaster: Lagoa Santa (State of Minas Gerais)
D. montium: Côte d'Ivoire (Africa)
D. neocardini?: Rio de Janeiro, D.F.
D. neoelliptica: Mogí das Cruzes (State of São Paulo)
D. pallidipennis: State of São Paulo
D. paulistorum: Rio de Janeiro, D.F.
D. simulans: Lagoa Santa (State of Minas Gerais)
D. sturtevantii: Rio de Janeiro, D.F.
D. tripunctata: Florida, U.S.A.
D. virilis: Argentine
D. willistoni: Rio de Janeiro, D.F.

São Paulo: Universidade de São Paulo, Faculdade de Filosofia, Ciências e
Letras, Depto. de Biologia Geral

- D. ananassae*, Doleschall, 1858: São Paulo, State of São Paulo
D. annulimana, Duda, 1925: Vila Atlântica, State of São Paulo
D. araicas, Pavan and Nacurur, 1950: Belém, State of Pará
D. arana, Pavan and Nacurur, 1950: Pirassununga, State of São Paulo
D. bandeirantorum, Dobzhansky and Pavan, 1943: Pirassununga and Mogí das Cruzes, State of São Paulo
D. bocainensis, Pavan and Cunha, 1947: Pirassununga and Mogí das Cruzes, State of São Paulo
D. capricorni, Dobzhansky and Pavan, 1943: Mogí das Cruzes, State of São Paulo
D. cardinoides, Dobzhansky and Pavan, 1943: Mogí das Cruzes, State of São Paulo
D. guaramunú, Dobzhansky and Pavan, 1943: Mogí das Cruzes, State of São Paulo
D. mediopunctata, Dobzhansky and Pavan, 1943: Reuter, State of Rio Grande do Sul; Mogí das Cruzes, State of São Paulo; Lamedor, State of Paraná
D. mercatorum mercatorum, Patterson and Wheeler, 1943: Santa Barbara, California; S. José da Costa Rica; Lima, Perú
D. mercatorum pararepleta, Dobzhansky and Pavan, 1943: strains from 40 localities of Brazil; strain from Santa Cruz de la Sierra
D. meridiana rioensis, Patterson, 1943: Atlixio, México
D. mesofragmatica, Duda, 1925: Campos do Jordão, State of São Paulo
D. montium: Honolulu, Hawaii; Pirassununga, Itanhaem, São Paulo, State of São Paulo; Lamedor, State of Paraná
D. neocardini, Streisinger, 1946: Pirassununga, State of São Paulo
D. neoelliptica, Pavan and Magalhães, 1950: Anapolis, State of São Paulo
D. neosaltans, Pavan and Magalhães, 1950: Mogí das Cruzes, State of São Paulo
D. paranaensis, Barros, 1950: Capitão Heitor Port, Parana river; Cataratas de Iguaçu; Foz do Iguaçu; Pirassununga, State of São Paulo; Belém, State of Pará; Imperatriz, State of Maranhão; Santo Angelo, State of Rio Grande do Sul
D. Peninsularis, Patterson and Wheeler: Lake McKethan, Florida; Tarpon Springs, Florida
D. polymorpha, Dobzhansky and Pavan, 1943: Dark selected strain from Prata, State of São Paulo
D. pulla, Pavan and Cunha, 1947: Mogí das Cruzes, State of São Paulo
Drosophila species 1, Medio group: São Paulo, State of São Paulo
Drosophila species 2, Dreyfus group: Vila Atlântica, State of São Paulo

- D. sturtevantii, Duda, 1925: Belém do Pará; Vila Atlântica and Pirassununga, State of São Paulo; Palmares, State of Goiaz; Imperatriz, State of Maranhão
 D. willistoni sturtevantii, 1921: 25 strains from different parts of Brasil
 D. willistoni:

Mutants

- Chromosome 2: Emarginate/purple-hairless
 Chromosome 2: Star-Hooked-abbreviated brown Inv. 207/broad
 Chromosome 10: white

Balanced stock S Hk abb bw Inv. 207/lethal

Numbers of different lethals	Locality	State
28	Catuni	Bahia
25	Vila Atlântica	S. Paulo
40	Mogi das Cruzes	S. Paulo
6	Pirassununga	S. Paulo
5	Palmares	S. Paulo
10	Cruzeiros do Sul	Territory of Acre
5	Japiim	Territory of Acre
1	Mucajai	Amazonas
5	Rio Negro	Amazonas
2	Belém	Pará
2	Palmas	Goiaz

FRANCE

Paris: Université de Paris, Laboratoire de Génétique

D. simulans: wild type

GERMANY

Berlin-Buch: Institut für Medizin und Biologie, Genetische Abteilung

D. funebris

<u>Wild Stocks</u>	<u>X chromosome</u>	<u>Autosomes</u>
92 normal	94 ev	98 Pch
93 normal (Buch, 1947)	95 w	99 st
	96 y	
	97 yw	

Other Species (wild)

100 D. busckii	103 D. simulans, v
101 D. virilis	104 D. hydei
102 D. repleta	

Berlin-Dahlem: Institut für Genetik der Freien Universität Berlin

D. busckii	D. hydei	D. repleta
D. funebris	D. pseudoobscura: Cuernavaca	D. simulans
		D. virilis

Göttingen: Max Planck-Gesellschaft, Institut für Tierzucht und TierernährungD. virilis

1 +	3 b; t; cd; es	5 va; gl
2 ac gl	4 b; tb ep; cd; pe	6 y ^{40a}
		7 y ^{40a} ; b; cd; es

Other Species

D. immigrans	D. repleta
D. pseudoobscura A: Texas	D. simulans: v

Göttingen: Zoologisches Institut der UniversitätD. funebris

+	Family Drosophilidae
M	Zaprionus Ghesquierei
Pch	Zaprionus vittiger

GREAT BRITAINEdinburgh, Scotland: Edinburgh University, Institute of Animal GeneticsSpecies trapped in the United Kingdom

D. ambigua (2); also short-veined mutant
 D. deflexa
 D. hydei (2)
 D. immigrans
 D. obscura
 D. phalerata
 D. subobscura (6); also short-veined mutants and vermilion
 D. transversa
 D. tristis
 D. new species: near obscura (2)

Collected in various parts of the world

8 strains of D. simulans

Glasgow, Scotland: University of Glasgow, Department of Genetics

D. hydei: 1pl (lethal polyploid larvae)

Harpenden, Herts, England: Rothamsted Experimental Station

D. simulans

London, England: University College, Department of Biometry

D. funebris: m w st	D. persimilis: Aspen 1 +
D. hydei: vg	Tuolumne 10 +
	Tuolumne 11 +
	bu
	sn

D. pseudoobscura: La Grande +
 Santa Barbara +
 Texas +
 P tb
 tb b v se sp
 w
 se ll sp tt

D. simulans: Austin Texas +
 st pe
 y w

D. subobscura

Wild type

+ KÜSSNACHT

X chromosome

Standard Order

c(X) cv sc
 v w +/vw^{co} sc
 ct^{frM} be
 ct cv²
 ct y²
 Bx²
 da oc (pf)
 oc (fs)
 v N⁵ rr w^{co} sc
 ctan
 sn v cv sc
 ry v (ct)
 mct bnt v sc
 ct¹/ct^{frM} bnt
 pm ct sn cp
 scl wi
 bnz v cv
 pm ct/ry ct
 v w/v w^{co} y wi
 ct^k (segregating for ?
 In(X)1)
 m ct sn cp v sc
 v w^a sc/v w^{co} sc
 lz + +/+ w^{co} sc

Inverted Order

bnz² v In(X)1+2
 + In(X)1+2
 ct cp sn v In(X)1+2
 ct cp sn v y In(X)1
 sn cp In(X)3

Balbani Ring Chromosome

Standard Order

th ma
 s:e
 ma int
 log th int
 s th int ey wt
 wn th int
 sepia
 s² (order unknown)
 log th int eyeless-like

Inverted Order

s th ma int
 ma mop
 ho
 r
 nt
 pf nt
 pp; segregating for gs

Chromosome 3

pl pp op
 pl pp pt
 otppp fs
 pt^c
 sj pl pp fs
 sj pl otp pp
 pp pt fs

Chromosome 4

pl pp op
 pl pp pt
 otppp fs
 pt^c
 sj pl pp fs
 sj pl otp pp
 pp pt fs

Chromosome 5

ch cu for D1
 ch for Ba
 ch ar for Va¹
 ar for Va^x
 ch ax
 ch for Ba and ix
 + for Ba and rn
 + for Ba and st
 + for Ba and ant

Chromosome 6

fro

Multichromosomal

ma: pl pp
 ma: ch

Unplaced Autosomal Loci

cm
 csp
 Fh
 pa
 forked Milani
 (ma int)
 dk
 wg
 pointed-like
 bt
 gi
 mu

Stocks of R. Lamy

D. persimilis

2 wild strains

D. pseudoobscura

7 wild strains

Chromosome 1

1 w⁵
 2 P tb sp

3 tb b v se sp
 4 w⁷ dy
 5 se ll sp tt
 6 Px sn v dy
 7 w⁴³

Chromosome 3

8 or pr

Multichromosomal

9 v sp; arp; pr; tg
 10 v m; tg

- 11 Inversion II of persimilis in pseudoobscura genotype; balanced against Minute (lethal)

ISRAEL

Jerusalem: Hebrew University

- D. immigrans
D. simulans: Florida
D. simulans: Qiryat 'Anavim

ITALY

Pavia: Università, Istituto di Genetica

- | | | |
|-------------------------------|-----------------------|------------------------|
| D. acanthoptera (1 strain) | D. helvetica (1) | D. putrida (1) |
| D. affinis (4 strains) | D. hydei (1) | D. repleta (1) |
| D. algonquin (4) | D. immigrans (1) | D. robusta (1) |
| D. ambigua (6) | D. kuntzei (1) | D. sellata (1) |
| D. athabasca (1) | D. lebanonensis (1) | D. simulans (2) |
| D. azteca (1) | D. littoralis (1) | D. spinofemora (1) |
| D. baeomyia (1) | D. miranda (1) | D. subbadia (1) |
| D. bifasciata | D. mirim (2) | D. subobscura |
| Wild stocks (3) | D. montium (1) | Wild stocks (24) |
| Mutants: f | D. narragansett (1) | Homozygous |
| ob | D. nitens | standard (2): |
| or | Wild stocks (2) | Esperöd |
| D. busckii (1) | Mutants: or | Klüssnacht |
| D. buzzatii (3) | y | D. testacea (1) |
| D. cardini (1) | D. obscuroides (5) | D. transversa (1) |
| D. dschabibi: n.sp. Burla (1) | D. pallida (1) | D. tripunctata (1) |
| D. duncani (1) | D. persimilis (3) | D. tristis (2) |
| D. funebris (1) | D. polychaeta (1) | D. victoria (1) |
| D. gibberosa (1) | D. prosaltans (1) | D. virilis (1) |
| D. guttifera (1) | D. pseudoobscura (15) | D. willistoni (1) |
| | | D. yakuba: n.sp. |
| | | Burla (1) |
| | | Zaprionus vittiger (1) |

Pavia: Università, Istituto di Zoologia e Centro di Genetica

- | | | |
|--------------------|----------------------|-----------------------------|
| D. affinis (1) | D. persimilis (1) | D. subobscura (5) |
| D. ambigua (3) | D. pseudoobscura (1) | Mutant: unlocated |
| D. bifasciata (1) | D. simulans (1) | autosomal-vg ^{48j} |
| D. obscuroides (1) | | |

JAPAN

Anjo: Nagoya University, Faculty of Agriculture

Wild Stocks

- D. auraria
D. immigrans

- D. lutea
D. rufa
D. transversa
D. virilis

Kyoto: Kyoto University, Zoological InstituteD. ananassaeWild Stocks

1 Barro Colorado Panamá 55
 2 Baton Rouge
 3 Campus Oahu, Hawaii
 4 Kyoto, Japan
 5 Louisiana
 6 Mampa, Africa
 7 Porto Rico
 8 São Paulo

9 Texas

10 Turrialba Costa Rica 101

Mutants

11 Bn (Broken)
 12 cd f
 13 cd f ru²
 14 px d
 15 ru (roughoid)
 16 y

D. virilisWild Stocks

America (3 strains)
 Japan (10)

Chromosome 1

1 bb
 2 buff
 3 cv mt w^e sb
 4 se
 5 si¹⁶
 6 y
 7 y⁵ cv(f⁴) ap

Chromosome 28 C²¹Chromosome 3

9 cn
 10 N3a

Chromosome 4

11 cd
 12 px

Chromosome 5

13 B⁴
 14 es pe
 15 Sb
 16 st
 17 st B³ pe (es)
 18 Sv po

Chromosome 6

19 ac gl
 20 Gp
 21 hp
 22 ski hp/Gp gl

Multichromosomal

23 b bk dt
 24 b ski
 25 b t² cd ni (es pi)
 26 cn px pe
 27 ds es pe
 28 px B³ pe
 29 px w st B³ pe
 30 R (eb) gp es cd
 31 w ds

Inversion

32 In (X) Spd

Translocation

33 T (X-4)
 34 T (Y-3)

Other Species

D. americana (1 strain)	D. immigrans (2)	D. simulans (2)
D. auraria (1)	D. migromaculata (1)	D. texana (1)
D. hydei (1)	D. novamexicana (1)	D. willistoni (1)

Misima, Sizuoka-ken: National Institute of Genetics

D. ananassae: wild stocks, Hawaii, Africa
 D. hydei: wild stock, Lebanon
 D. immigrans: several Japanese wild stocks
 D. virilis: 10 mutant and wild stocks

Osaka: Osaka University, Faculty of Medicine, Department of GeneticsWild Stocks

1-3 Wild types in America
 4-20 Wild types in Japan

D. virilisChromosome 1

21 cv mt w^e sb
 22 mt Bx w
 23 sd

24 si^{16}	<u>Chromosome 4</u>	<u>Multichromosomal</u>
25 v^4	34 px	43 si; b; t^2 ; cd; es
26 $v^4 si^{16}$	35 cd	44 N; R; tb; gp; cd; pe
27 w si^{16}		45 cv; cd
28 y ap	<u>Chromosome 5</u>	46 R; tb; bp; cd; pe
29 y ap bb	36 es	
30 y cv ap	37 es pe	
<u>Chromosome 2</u>	38 sb	
31 eb	39 Sv po	
32 ro	40 st B ³ pe	
<u>Chromosome 3</u>	<u>Chromosome 6</u>	
33 cn	41 hp	
	42 ski hp/Gp gl	

Virilis Group

D. americana americana (1 strain)
D. americana texana (2)
D. novamexicana (1)

Other Species

D. ananassae (2 strains)	D. hydei (2)	D. rufa (3)
D. auraria, race A (8)	D. immigrans (2)	D. simulans (1)
D. auraria, race B (2)	D. lutea (10)	D. suzukii (1)
D. busckii (1)	D. montium (4)	

Sapporo: Hokkaido University, Faculty of Science, Institute of ZoologyD. auraria

Wild Stocks: Sapporo and Shioya (A type and B type)

D. bifasciata

Wild Stock: Shioya

D. busckii

Wild Stocks: Shioya, Ruridera, and Sapporo

D. funebris

Wild Stocks: Shioya, Sapporo, Nakashibetsu, Chitose, and Imagane

D. hydei

Wild Stock: Otaru

D. immigrans

Wild Stocks: Otaru, Sapporo, and Samani

D. testacea

Wild Stocks: Otaru and Asahidake (Taisetsu Mountain)

D. transversa

Wild Stocks: Shioya, Asahidake, Rishiri, Rebun, Sapporo

D. virilis

Wild Stocks: Shioya, Sapporo, Asahidake, Nakashibetsu, and New York

Tokyo: Tokyo Metropolitan University, Department of Biology

D. ananassaeWild Stocks

1 Texas	23 2L-A ^H
2 TL ₁	24 2L-B ^H
3 TL ₃	25 2L-A ^M
4 TL ₄	
5 TL ₃₋₄	<u>Mutants</u>
6 TL ₃₋₁₁	26 cd f
7 Barro Collorado, Panama 55 (low elevation)	27 bw
8 Barro Collorado, Panama 69 (low elevation)	28 Bn
9 Barro Collorado, Panama 74 (low elevation)	29 ru
10 Turrialba, Costa Rica 101 (high elevation)	30 pxd
11 Turrialba, Costa Rica 104 (high elevation)	31 cd f ru ²
12 Turrialba, Costa Rica 116 (high elevation)	32 cd f bw
13 Turrialba, Costa Rica 125 (high elevation)	33 y
14 São Paulo	34 f
15 Mampa, Africa	35 bb
16 Monterrey, Mexico	36 dpl e
17 Christobal, Panama	37 y f
18 Campus Oahu, Hawaii	38 cd cv-a
19 Porto Rico	39 f cd bw ru ^c
20 Baton Rouge, Louisiana	40 Bn-c
21 Hawaii-H	41 f cd bw ski
22 2L-A ^L	42 Bn-c bw
	43 ss ^{HX}

Other Species

D. americana americana (wild, 1 strain)	D. nigromelanica-like (wild, 1 strain)
D. auraria (A-type, wild, 7 strains; B-type, wild, 3 strains)	D. novamexicana (wild, 1 strain)
D. bifasciata (wild, 4 strains)	D. persimilis (wild, 1 strain)
D. bizonata (wild, 1 strain)	D. pseudoobscura (wild, 2 strains; mutant, 1 strain)
D. busckii (wild, 4 strains)	D. rufa (wild, 4 strains)
D. funebris (wild, 2 strains)	D. simulans (wild, 1 strain)
D. gibberosa (wild, 1 strain)	D. sordidula (wild, 3 strains)
D. hayashii (wild, 3 strains)	D. suzukii (wild, 2 strains)
D. hydei (wild, 3 strains)	D. takahashii (wild, 2 strains)
D. immigrans (wild, 8 strains)	D. transversa (wild, 4 strains)
D. immigrans--group I (wild, 1 strain)	D. virilis (wild, 7 strains; mutant, 5 strains)
D. immigrans--group II (wild, 1 strain)	D. willistoni (wild, 1 strain; mutant, 1 strain)
D. lutea (wild, 6 strains)	
D. miranda (wild, 1 strain)	
D. montium (wild, 6 strains)	

Tokyo: University of Tokyo, Faculty of Science, Botanical Institute, Laboratory of Genetics

Wild Stocks

D. ananassae	D. hydei	D. virilis
D. auraria	D. montium	
D. busckii	D. suzukii	

NORWAY

Oslo: Universitetet, Arvelighetsinstituttet
(Vilhelm Kiil)

D. funebrisWild Stock

1 Mølselv

Chromosome 1 (X)

2 minute vermillion

3 N w

4 sn np

5 sn²

6 w

7 w sn np

Y Chromosome8 Bb^Y9 co np/Stb^YChromosome 2

10 cn

11 cn²

12 cu Pyp

13 Pyp

14 st⁴⁵ⁿ (Mainland) an allele of cnChromosome 3

15 Va

Multichromosomal

16 bws; st (1;4)

17 co np; st (1;4)

18 cu; st (2;4)

SOUTH AFRICA

Johannesburg: University of the Witwatersrand, Department of Zoology

Note: Stock list remains unchanged. (D. persimilis, pseudoobscura, simulans, subobscura, and other species.) See DIS-25, p. 92.

SWEDEN

Stockholm: University of Stockholm, Institute of Genetics

D. funebrisWild Stocks

1 Belluno, Italy

2 Hendon, England

3 Lidingö, Sweden

4 Paris, France

5 Edinburgh, Scotland

6 +A, Philadelphia, U.S.A.

7 +B, Philadelphia, U.S.A.

Chromosome 1

8 ev

9 sc

10 sc ev

11 v₁ (from Edinburgh)12 v₂ (from Belluno)13 w₁ (from Lidingö)14 w₂ (from +B, Philadelphia)

15 y

16 y w₁D. repleta

1 Paris

NEW MUTANTS

D. bifasciataReport of F. Mainx

cv: crossveinless Moosheimer. Recessive, autosomal. Anterior cross-vein absent or interrupted.

tr: triangle Moosheimer. Sex-linked, manifestation only in males. Wings considerably darkened, with a light triangle, sharply outlined, in the last third of the submarginal cell.

D. nitensReport of Istituto di Genetica, Universita di Pavia

y: yellow Peschiera, 511. Sex-linked recessive. Single male found in Pavia strain. Body color rich yellow, hairs and bristles brownish yellow. Wing hairs and veins brownish yellow. Viability and fertility good.

D. persimilisReport of E. B. Spiess

vs: vesiculated Obtained by R. Lewontin in an X-rayed culture. Recessive in second linkage group. Wing shape variable in expression from extreme blistered, warped to slightly crumpled or asymmetrical. Young flies usually have blisters filled with blood. Compares favorably with vs of melanogaster and prosaltans. The wings when curved strongly are always bent downwards and shortened to half their length.

D. robustaReport of M. Levitan

Ring chromosome See Levitan, M., 1952, Genetics 37: 600 (abstract).

3R-2 (a new gene arrangement) Single-step inversion from standard (3R). Both breaks in region 31 (following figures of Carson, H. L., and H. S. Stalker, 1947, Evolution 1: 113-33). Apparently spontaneous in a pair mating of F₂ from ring-bearing female (see Levitan, 1952, Genetics 37: 600) x standard stock.

A wing character resembling dumpy in D.m. Appeared as one-fourth of progeny from a pair mating in inbreeding a local wild strain. Both sexes sterile. Wings commonly crumpled.

D. subobscuraReport of J. M. Clarke

bt: bright From R. Demerec, 52g. Bright-red eye color. Autosomal recessive.

cut-like Jeffs, 52f. Single male in s th int ey wt. Sterile.

eyeless-like Jeffs, 52f. Segregating in log th int. Eye size reduced, penetrance incomplete. Autosomal recessive. Allelomorphism not tested.

gi: ginger Clarke, 52g. Pale-brown eye, orange testis. Segregating in bt. Autosomal recessive.

lz^c: lozenge Dowsett, 52d. Eye less extremely affected than lz, but other pleiotropisms same. Male sterile. Close linkage to w confirms allelomorphism with lz.

m: miniature Clarke, 52h. Single male, Allelomorphism confirmed.

miniature-like Clarke, 52g. Single male m w sc, in vw +/vw^{co} sc. Sterile.

net-like Clarke, 52f. Two females, one male, in In(X)1 ct cp sn v y. Sterile. Phenotype of nt.

pointed-like Clarke, 52f. Segregating in ct^k. Phenotype of pt, allelomorphism not tested. Autosomal recessive.

scute-like Clarke, 52b. Single female in ct^k with four anterior scutellars. Impenetrant inviable sex-linked recessive with duplication or absence of anterior scutellars. Lost.

Varicose-like Clarke, 52g. Single male with pleiotropisms of Va in da oc(pf). Sterile.

w: white Clarke, 52f. Single male in In(X)1 ct cp sn v y. Sterile.

wg: wingless Clarke, 51e. One male and six females in ct^k x + KÜSSNACHT. Wings completely vestigial. Recessive. Kept as wg/wg x wg/+. Clarke, 52d, found one completely eyeless female from v N⁵ rr co sc to be fertile. Two similar females sent to Dr. R. Milani for behavior studies.

Report of A. Hornibrook

mu: mucky Hornibrook, 52i. Wings imperfectly expanded, folded longitudinally. Expression variable. Autosomal recessive.

Report of J. Maynard Smith

ct^{fr}: cut Smith, 52. Allelomorphism tested.

nt: net Smith, 52. Allelomorphism tested.

pro: proteus Smith, 52i. Eyes absent, but one female had one eye. Legs greatly shortened, number of joints in tarsus reduced. Sublethal.

pro: proteus Sterile. Males and females occur repeatedly in a stock.

v: vermilion Smith, 52. Allelomorphism tested.

D. tristisReport of F. Mainx

cv: crossveinless Nitnaus. Autosomal, recessive. Crossvein interrupted or absent.

Aphiochaeta xanthina (Phoridae)Report of F. Mainx

r-4-red Ondraschek. Partially sex linked, recessive. First vein of the radius sector shortened, not extended to the costa. This locus is already the second partially sex-linked discovered in Aphiochaeta.

RESEARCH NOTES

Altorfer, Nelly Effect of the Y chromosome on the expression of the *ci* gene in *D. melanogaster*.

The expression of the *ci* gene has been compared in XY and XO males bearing translocations between chromosomes 3 and 4.

When the translocation gives rise to position effect--i.e., when the *ci* gene is translocated some distance from the heterochromatin of the centromere of chromosome 3--the absence of the Y chromosome generally increases the position effect. This result is in the opposite direction to the one observed by Schultz under similar conditions for the light gene. When there is no position effect, the expression of the *ci* gene is the same in XO and XY males.

Anders, G. Pleiotropic effect of lozenge-clawless.

The pleiotropic pattern of lozenge-clawless (*lz^{cl}*) previously described includes effects upon the eyes, antennae,

pretarsi, and internal female genitalia. It has now been found that on the maxillary palpus there is a certain type of thin-walled blunt hairs (possibly sensilla basiconica) which are strongly affected by the *lz^{cl}* gene action. Similar hairs are also reduced on the third antennal segment. This observation suggests a similarity of the *lz^{cl}* gene action on different organs.

Annan, Murvel E. Crowding and temperature effects on the duration of development of *D. affinis* and *D. pseudoobscura*.

Two degrees of crowding (300 or 600 eggs per 60 cc medium) and two generally non-overlapping temperature ranges (20° and 25° C) were applied to either mixed two-species cultures or single-species

cultures of *D. affinis* and *D. pseudoobscura*. It was found that: (1) Increased crowding increased the mean duration of development by 24% to 41%. (2) The lower temperature increased the mean duration of development by 18% to 35%. (3) The *pseudoobscura* strain used exhibited a 10% to 27% longer mean duration of development than did the *affinis* strain used. In the 600 series and at the lower temperature, there was a highly significant difference between the mean duration of development of *pseudoobscura* raised in single-species cultures and that of *pseudoobscura* raised with *affinis*. There was a similar tendency at the higher temperature in the 600 series but not in the 300 series. It was suggested that this tendency may have been partially due to *pseudoobscura*'s having a longer duration of development than *affinis*. Thus when half the "competing" larvae were removed (as when the faster-developing *affinis* pupated from the mixed cultures) the remaining *pseudoobscura* larvae would be able to develop faster.

Bird, M. J., and Fahmy, O. G. Chemical mutagenesis.

The investigation of the mode of action of carcinogenic and tumor-inhibitory compounds on the hereditary material of *D. melanogaster*

is being continued. Three new compounds related to the nitrogen mustards, which proved effective in the inhibition of the rat Walker tumor, have been tested for mutagenic activity. The compounds, dissolved in 0.4% saline, were injected abdominally into 1-2 day old adult males. The offspring of the treated males were tested for sex-linked recessive lethals by the Muller-5 technique. All three compounds proved mutagenic (Table 1).

Lethals produced in experiments using compounds which proved to be strong mutagens--namely, diepoxybutane, tri-(ethyleneimino)-triazine, and dimethanesulphonoxy-but-2-yne (DIS-24,-25)--are being tested against 66 loci of known visible mutations on the X chromosome, in an attempt to determine the exact distribution of the affected loci.

Table 1

Compound	Conc. %	Chr. Tested	Lethals	% Lethals
NN-di-2-chloroethyl-p-amino phenyl acetic acid $\text{CO}_2\text{HCH}_2\text{C}_6\text{H}_4\text{N} \begin{cases} \text{CH}_2\text{CH}_2\text{Cl} \\ \text{CH}_2\text{CH}_2\text{Cl} \end{cases}$	0.2	261	12	4.6
NN-di-2-chloroethyl-p-amino phenyl propionic acid $\text{CO}_2\text{HCH}_2\text{CH}_2\text{C}_6\text{H}_4\text{N} \begin{cases} \text{CH}_2\text{CH}_2\text{Cl} \\ \text{CH}_2\text{CH}_2\text{Cl} \end{cases}$	0.5	258	10	3.9
NN-di-2-chloroethyl-p-amino phenyl butyric acid $\text{CO}_2\text{HCH}_2\text{CH}_2\text{CH}_2\text{C}_6\text{H}_4\text{N} \begin{cases} \text{CH}_2\text{CH}_2\text{Cl} \\ \text{CH}_2\text{CH}_2\text{Cl} \end{cases}$	0.2	653	48	7.4

Cytological study of the salivaries of female larvae heterozygous for the lethals produced by various chemical mutagens is also being undertaken. So far, lethals induced by diepoxybutane and tri-(ethyleneimino)-triazine have been studied; the frequencies of the various types of chromosome aberrations induced by them are summarized in Table 2.

Table 2

Compound Tested	Stocks Examined	Lethal Rate	Gross Structural Changes					Deficien- cies		Stocks with Aberrations	
			Trans.	Inv.	Del.	Total	%				
	No.	%	No.	No.	No.	No.	%	No.	%	No.	%
Diepoxide	103	10.3	1	3	6	10	9.7	43	41.7	47	45.6
Triazine	91	11.1	3	10	6	19	20.9	33	36.3	50	54.9

The distributions of the cytologically detectable loci of damage (breaks and small deficiencies) induced by the diepoxide and triazine have also been studied. The numbers of loci of damage induced by mutagenically equivalent doses of the above two compounds in the main divisions of the salivary X chromosome (20, Bridges' 1938 map) were pooled and compared. Under such conditions the distributions were not significantly different. This indicates that a "coarse" specificity (for large segments) does not seem to occur on the part of the two mutagens investigated. More extensive data are published elsewhere (see Bibliography).

Bochnig, V. The mode of inheritance of DDT resistance in *Drosophila*.

By selecting imagines (males and unfertilized females) of the "Berlin-wild" stock in Petri dishes containing a film of 100 gamma DDT until the 42nd generation

and 200 gamma in the succeeding generations, a highly DDT-tolerant stock was built up.

Survivor Percentages After 6 Hours of Poisoning
(Age of flies, 19-25 hours; total no. of flies, 2600.)

	Females	Males
Control	8.9	1.4
Selected	99.3	78.0

This resistance level could not be increased after the 65th generation. It did not drop for another 20 generations when the flies were raised without DDT treatment and selection. Reciprocal crosses between the resistant and the normal stock gave intermediate and identical survivor values in the F_1 . The four backcrosses of the F_1 with both sexes of the two parent stocks resulted in two groups of survivor rates: the intermediates between the F_1 and the employed parent stock, without respect to sex.

Brandt, H. von, and Hühne, G.

Induction of chromosomal mutations in *Drosophila* by fast electrons and X-rays.

stock cn; ss. Doses of 1000 r, 4000 r, and 6000 r were applied with 200-Kv X-rays and fast electrons from a 6-mev betatron, in cooperation with Professor Paul (Physical Institute of the University, Göttingen). The frequency of aberrations induced by both types of ionizing radiations increased more rapidly than the dose. The average experimental results ranged between a single-hit and a two-hit curve calculated theoretically. Dependence of the reaction on wave length was not observed within the range of energy examined. The value of the relative efficiency of fast electrons compared with X-rays did not differ very much from 1.

The biological efficiency of fast electrons and X-rays was tested in *D. melanogaster*. The rate of reciprocal translocations between chromosomes 2 and 3 after irradiation was determined on the multichromosomal

Brandt, H. von, and Hühne, G.

Tests of mutagenic action of two antibiotics.

into adult males (wild stock, Berlin normal). The sex-linked recessive lethals were determined by the ClB method. The mutation rates produced under these conditions did not show a significant increase in comparison with the control groups (NaCl, KCl).

Two antibiotics, streptomycin and aureomycin, have been tested for mutagenic action in *D. melanogaster*. Sublethal doses of these drugs were injected intra-abdominally

Compound Tested	Concentration %	No. Chromosomes Tested	No. Lethals	% Lethals
Dihydro-streptomycin sulfate	1.0	1008	7	0.69
Aureomycin hydrochloride	0.1	726	-	-

Brncić, D., and Koref, S.

A study of tumors in several species of *Drosophila*.

Melanotic bodies, similar to the tumors described in *D. melanogaster*, were found in natural populations of the following species of *Drosophila*: *D. campestris*, *bainderan-torum*, *bocainensis*, *griseolinata*, *guaramunú*, *immigrants*, *mediostriata*, *mediopunctata*, *nebulosa*, *repleta*, *simulans*, *sturtevantii*, *virilis*, and *willistoni*. In stocks maintained in the laboratory for a long time, it was determined that the frequency of tumors varied from 0 to 5 per thousand, with a mean value of 1-2

per thousand. The highest proportion was found in the D. sturtevantii Belem strain (2.08 per thousand). Different strains of the same species had different tumor frequencies. Study of the offspring of tumor-bearing flies, and crossing of strains selected for high frequency of tumors, revealed that these were inherited through recessive genes of incomplete penetrance. As in D. melanogaster, the tumors appear in the larval stage and regress at the end of this period, becoming filled with melanic pigments. These melanized tumors persist in the pupae and adults as foreign bodies, which apparently produce no important alterations in their bearers.

Burdette, Walter J. The effect of pigmentation on tumor incidence in the tu^{48j} strain.

Melanomas occur less frequently in Negroes than in white patients admitted to Charity Hospital of Louisiana. On the other hand, it has been shown that certain tumors of

the small intestine are associated with pigmentation about the oral cavity, and the association between acanthosis nigricans and internal cancer is well known. Therefore the influence of pigmentation on the incidence of tumors in *Drosophila* is of interest. By utilizing inversions to prevent crossing over, a chromosome bearing the ebony¹¹ gene was introduced into the tu^{48j} strain with main tumor gene on the second chromosome. The incidence of tumors was then determined in both males and females, and compared with that in the original tu^{48j} strain.

		Tumors	Population	% Tumors
<u>tu^{48j}</u>	♂♂	207	812	25.5
<u>tu^{48j} e¹¹</u>	♂♂	136	502	27.1
<u>tu^{48j}</u>	♀♀	435	951	45.7
<u>tu^{48j} e¹¹</u>	♀♀	151	604	25.0

The number of tumors in tu^{48j} e¹¹ males was no different than the number in tu^{48j} males without the chromosome carrying this gene. The usual higher incidence of tumors in females of this strain was not found when the ebony¹¹ gene was present. Pigmentation per se, then, does not necessarily affect susceptibility to spontaneous tumors in this strain. Further work on the differences in incidence between the sexes is in progress.

Burdette, Walter J., and Haddox, Charles H., Jr.
Analysis of lethals occurring after chemical treatment.

A number of recessive, lethal mutations on the X chromosome of D. melanogaster, accumulated from studies on the mutagenic effects of chemical agents, were examined for structural rearrangements in the salivary

chromosomes (Table 1). The approximate location of each lethal was also determined by obtaining crossover frequencies, using a stock marked with y v f car. The results appear in Table 2. Lethals occurring in flies treated with methylcholanthrene and in those with the Florida "high" gene are associated with no gross rearrangements, and the frequency of small rearrangements is much lower than in chromosomes exposed to the mutagenic agents, nitrogen mustard and formaldehyde. The mutants found after treatment with different chemical agents were distributed throughout the length of the X chromosome.

Table 1

Chromosomal rearrangements associated with lethals

Treatment	Chromosomes Treated	Lethals		Salivary Chromosomes Examined	Rearrangements					
		Recovered No.	%		Large No.	%*	Small No.	%*	Total No.	%*
Controls	9683	15	.15	3	0	0.0	0	0.0	0	0.0
Stilbestrol	1105	2	.18	2	0	0.0	0	0.0	0	0.0
20-methyl-cholanthrene	4264	14	.33	14	0	0.0	1	7.1	1	7.1
Florida "high"	3284	36	1.10	25	0	0.0	3	12.0	3	12.0
Nitrogen mustard**	18373	189	1.03	96	7	7.3	15	15.6	22	22.9
Formaldehyde	1174	18	1.53	17	2	11.8	4	23.5	6	35.3

* Per cent rearrangements of total salivary chromosomes examined.

** methyl-bis (beta-chloroethyl)amine hydrochloride.

Table 2

Localization of lethals on the X chromosome by crossover studies

Treatment	Percentage Lethals per Region (Inclusive)							Total No. of Lethals
	0-9	10-19	20-29	30-39	40-49	50-59	60-66	
20-methyl-cholanthrene	9.1		36.4		18.2	18.2	18.2	11
Florida "high"	25.0	6.25		6.3	12.5	43.8	6.3	16
Nitrogen mustard	10.9	12.0	10.9	21.7	10.9	5.4	28.3	92
Formaldehyde	13.3	6.7		26.7	20.0	20.0	13.3	15
Total	12.5	8.8	10.3	18.4	14.0	12.5	22.8	136

Burdette, Walter J., and Olivier, Henry R. Tumor incidence in F_1 progeny of tumor strains.

A large number of tumor strains have been described, but the possibility that certain strains of diverse origin may represent repeated occurrence of the same tumor-susceptibility genes has never been thoroughly

tested. The known location of genes in various tumor stocks was reviewed, and it was found that a number occur on the second chromosome. Seven of these stocks were selected, reciprocal crosses were made in each of the possible combinations, and the F_1 generation was observed for the appearance of melanotic tumors. The results may be seen in the following table. With one exception, no tumors were found in the offspring of the forty-nine crosses except, of course, homologous crosses between individuals of the same strain. These results may be explained by the presence of at least one tumor gene common to the se ell tu^{49h} and vg tu bw strains. No evidence was obtained of allelomorphic tumor genes in the remainder of the strains.

Tumor incidence in F₁

Strain		tu ^{36a} ♀	tu bw vg ♀	tu ^{wps} ♀	tu ^{49h} ♀	tu ^g ♀	mt ^A ♀	tu ^{48j} ♀
tu ^{36a} ♂	Tumors	55	---	---	---	---	---	---
	Population	903	741	472	500	656	776	764
tu bw vg ♂	Tumors	---	483	---	336	---	---	---
	Population	562	483	296	522	600	371	277
tu ^{wps} ♂	Tumors	---	---	66	---	---	---	---
	Population	476	334	401	385	275	269	381
tu ^{49h} ♂	Tumors	---	132	---	136	---	---	---
	Population	600	344	209	280	284	484	347
tu ^g ♂	Tumors	---	---	---	---	637	---	---
	Population	651	559	274	63	1056	867	440
mt ^A ♂	Tumors	---	---	---	---	---	177	---
	Population	630	463	250	181	639	490	310
tu ^{48j} ♂	Tumors	---	---	---	---	---	---	200
	Population	703	708	225	86	542	594	247

Burla, H. Polymorphism and sexual dimorphism in two species of *Zygothrica*.

Zygothrica is a drosophilid genus very close to *Hirtodrosophila*. In the two species *Z. dispar* and *Z. prodyspar*, the males have enlarged heads. There are other sexually

dimorphic characters in both species, such as the coloration of the antennae, face, palpi, cheeks, and mesonotum. Typical of males of *Z. dispar* only is the darkening of the wing and the occurrence of erect acrostichals. In large males the head is broader than in small males. It is evident that an allometric growth process governs the broadening of the head. In males of *Z. dispar*, broad heads are associated with light color of the mesonotum and tergites, and narrow heads with dark color. The number of erect acrostichals is positively correlated with the width of the head.

If the males in samples from natural populations of *Z. dispar* are classified according to relative width of the head, a bimodal frequency histogram is found. It is not yet clear whether the occurrence of two types of males is due to an underlying genic polymorphism, or to the slightly broken or S-shaped logarithmic curve of allometry which is found to occur in the species. It has not yet been found possible to breed these two species.

Burla, H., and Pavan, C.
On the calloptera group of species.

We found in Brazil four species of the calloptera group, of which three are new. The common characters indicate a close relationship of the group with the tripunctata-

quinaria-guarani-cardini complex of the subgenus *Drosophila*. In one of the new species we observed a high degree of formation of geographic races. When a comparison was made of wing indices and ten other quantitative characters of four samples from Rio de Janeiro and from the State of São Paulo, all the samples proved to be of different geographic races. Most striking is the racial differentiation in the size and color of the spermathecae. Within each sample, some characters vary considerably. In one of the samples, body size proved to be a polymorphic character.

Cain, A. J., and Demerec, V. R.
Identification of the type of
Drosophila obscura Fallen.

An examination of the type specimen of
Drosophila obscura from the Stockholm
museum, labeled obscura in Fallen's own
writing, shows that D. obscuroides

Pomini is synonymous with D. obscura Fallen. (See Cain, Collin, and Demerec,
The correct application of the name Drosophila obscura Fallen and notes on
the type of D. tristis Fallen. Entomological Monthly Magazine 88: 193-196,
1952.)

Clark, A. M. Interspecific
crossings between D. setifemur
and D. spinofemora.

These two species, the first from
Eastern Australia and the second from
Hawaii, will hybridize without any
difficulty. The cross spinofemora x

setifemur gives fertile hybrids, but in the reciprocal cross the male hybrids
are sterile although the females are fertile. A detailed salivary analysis
has not yet been made, but preliminary examination has failed to reveal any
gross structural differences between the gene sequences in the two species.

Cooper, Kenneth W. Attached-X's
of exceptional origin involving
misdivision, exchange between
arms of X, or implausible double
exchanges.

The four cases described represent
extraordinary instances of X.- forma-
tion in males, for in each the X chro-
mosome involved either had its right
arm genetically marked (by y^+ of dp-112),
or had been involved in crosses that

make it extremely improbable that Y^S or Y^L instead of XR lay to the right of
the kinetochore. Only one exceptional individual was found in each cross,
and so no evidence points to a mitotic origin.

A. (1) $y w f.112/Y \delta$ x (3) $y f.:=/Y \phi$ gave a $y w f.:=/Y \phi$.

B. (1) $y B.112/Y:bw^+; bw \delta$ x (1) $y f.:=/Y; bw \phi$ gave a $y B.:=/Y; bw^+/Y; bw \phi$.

C. (1) $y f/sc^8.Y/Y:bw^+; bw \delta$ x (1) $y v.:=/0; bw \phi$ gave a $y f.:=/0; bw \phi$.

D. (1) $y f/Y; bw \delta$ x (1) $X^{cl},y/X^+; bw \phi$ gave a $y f.:=/0; bw \phi$.

In each of these cases, if a process akin to crossing over was involved,
the X.- may have arisen either by an oblique exchange between XR and XL, or
else by a single exchange of each chromatid of XL with the chromonema of Y,
the two exchanges being in different arms of Y. The latter interpretation
seems the more unlikely, and is indeed very improbable for case B, in which
the new X.- and $Y:bw^+$ occurred together in the sperm. To explain this on the
basis of simultaneous double exchange requires not only the two exchanges but,
in addition, second-division nondisjunction as well. It is true that a two-
stage mitotic event may be envisaged for these cases, but in the absence of
clustering this seems implausible. It could be, of course, that case D did
involve clustering, for survival of the newly arisen X.- required fertiliza-
tion of a 0 egg. Such eggs formed only 3.8% ($n = 8175$) of all eggs of
 $X^{cl}/X^+ \phi\phi$.

The simplest alternative to exchange between XR and XL that will account
for these newly arisen X.- is simple misdivision, a process not yet known to
occur for Drosophila chromosomes.

Cooper, Kenneth W. The rate of
equational nondisjunction of the
X chromosome in male Drosophila.

During routine checking of the behavior
of a new stock, some 26 pair matings of
 $y sc dl-49 v B^{M1}/Y^{CS}$ (ex-Canton-S);
 $bw \delta$ x $y ct f.:=/Y^{CS}; bw \phi$, three $y sc$

$dl-49 v B^{M1}/:=/Y^{CS}; bw$ females occurred among 3574 zygotes arising from Y^{CS}
eggs. This gives a rate of equational nondisjunction of the X's of \approx
 8.4×10^{-4} .

Cooper, Kenneth W. On the location of y^+ and ac^+ in $sc^8.Y$.

Muller (DIS-22) obtained $sc^8.Y$, a Y chromosome containing complete sets of fertility factors as well as y^+ and ac^+ , by exchange in a male between Y and $In(1)sc^8.Y^L$ of

this new Y is said to be lengthened, and to possess the heterochromatin of X that lies at the left end of $In(1)sc^8$. Presumably Lindsley and Novitski (DIS-24) have made a reasonably strong case for the absence of y^+ and ac^+ from near the tip of Y^S in $sc^8.Y$, for they have obtained a $Y^{SX.Y^Lsc^8}$ chromosome which, owing to crossing over between the proximal end of $Y^{SX}, In(1)EN$ and $sc^8.Y$, now contains a full set of fertility factors and hence gives fertile "XO" (viz., $Y^{SX.Y^L/O}$) males.

While studying segregations of Y chromosomes in complex hyperploids, I obtained a $sc^8.Y:bw^+$ chromosome by crossing over between $sc^8.Y$ and $Y:bw^+$. When $y\ ct\ f./sc^8.Y:bw^+$; bw females are crossed by, say, $y/Y^{CS}; bw$ males, detachments occur as in the case of any $X./Y$ female. But the detached X chromosomes now carry $y^+ ac^+$ or bw^+ . Two $y\ ct\ f.sc^8$ detachment chromosomes proved sterile when stocked against Y^S or $Y^S.Y^S$, but proved fertile when placed against $Y^L (=Y^{lc})$. It would seem, then, that this type detachment is $y\ ct\ f.sc^8.Y^S$. Accordingly, y^+ and ac^+ are very likely interstitial, and not terminal, in $sc^8.Y$. This is reasonable on other grounds, and I suggest that the tip of $In(1)sc^8$ involves a complex rearrangement, or that $sc^8.Y$ did not arise by simple exchange, reversed or otherwise, or possibly that the original Y itself possessed an inversion, and that the heterochromatin of X distal to y^+ is capable of exchange.

In any event, if y^+ and ac^+ are interstitial, $sc^8.Y$ is best symbolized $Y:sc^8$, and the crossover product between $Y:sc^8$ and $Y:bw^+$, until the locations of the inserted materials are known, as $sc^8.Y:bw^+$.

Crow, J., and Smith, D.
DDT resistance.

A DDT-resistant strain of D. melanogaster was obtained by gradually increasing the concentration of DDT in a Teissier-type population cage. Flies were tested for resistance by exposure to filter paper with a known DDT concentration. Owing to peculiarities in the dosage-response curve, the concentration required to kill 50% of the resistant strain in a 3- or 6-hour treatment was about 6-10 times that required for the control strain, while for a 24-hour treatment several hundred times as much was required. Tests with marked stocks show that both major autosomes are involved in resistance, but a finer analysis has not been possible.

Di Paolo, Joseph A.
Presumptive test for catalase.

The use of H_2O_2 as a mutagenic agent is relatively new. It has been postulated that activated peroxide is responsible for chromosomal aberrations in the case of X-radiation and that it may be partially responsible for ultraviolet mutations. Minces were made of D. melanogaster larvae, and adults. When fresh H_2O_2 was added to the individual minces a violent reaction was observed, as indicated by the liberation of bubbles which were assumed to be molecular O_2 . This is considered to be partial proof that there is in *Drosophila* an active enzyme system that protects it from the toxic effect of H_2O_2 .

Dorp van Vliet, N.O.van, and Sobels, F. H. The rectal ampulla an autonomous differentiation?

In order to check the possibility of the differentiation of the rectal ampulla from an autonomous imaginal ring (cf. Faber and Sobels, DIS-25: 105, 1951), transplantation

experiments were made with the posterior three-quarters of the larval hindgut. Five days after emergence of the hosts, the gut implants were removed and sectioned. In no case could imaginal differentiation in the implants be observed. It is therefore evident that, contrary to expectation, the larval hindgut, if not located in situ, is not able to give rise to imaginal differentiation, such as the rectal ampulla.

Dresden, D., and Oppenoorth, F. J. A strain resistant to gamma HCOH (hexachlorocyclohexane).

In DIS-25 the selection of strains of D. melanogaster resistant to gamma HCOH was reported. One of them, derived from the wild strain was further investigated.

The resistance was not specific; the insects were found to be resistant also to DDT and to thanite. Resistance proved to be nearly dominant and polygenic. With the contact method, the resistant strain was less susceptible and much more homogeneous than the susceptible one. With a skin application method, only the first difference remained, indicating that factors of importance in contact but not in application (e.g., mobility) were responsible for the greater homogeneity, whereas other factors, of importance in both methods, were responsible for the difference in susceptibility.

Edmondson, Margaret. A simple algebraic formula for finding the locus of a detrimental gene.

The assumption is made that the viability along the localization (normal) chromosome does not vary from region to region.

Let $a:b$ = the observed ratio of the normal class to the detrimental class (the noncrossover class in the counts).

Let $c:d$ = the observed ratio in the region determined as the crossover region (ratio greater than expected).

Let $x:y$ = the proportion of the distance the detrimental gene is from one marker to the other in this region, where $x + y$ is 100% of the map length of the region.

(a, b, c , and d may be used as the actual counts of flies in the various classes.)

$$\begin{aligned}\text{Then: } ax + by &= c \\ bx + ay &= d\end{aligned}$$

Solving simultaneously, we find that:

$$\begin{aligned}x(a^2 - b^2) &= ac - bd \\ y(a^2 - b^2) &= ad - bc\end{aligned}$$

Since what is desired is the ratio of x to y , the common factor $(a^2 - b^2)$ may be eliminated. Therefore:

$$\begin{aligned}x &= ac - bd \\ y &= ad - bc \\ x + y &= ac - bd + ad - bc \\ &= a(c+d) - b(c+d) \\ &= (a-b)(c+d)\end{aligned}$$

Therefore the desired proportion of the critical region is given by:

$$\frac{x}{x+y} = \frac{ac-bd}{(a-b)(c+d)}.$$

Substituting in the observed values of a,b,c,d, when this proportion is multiplied by the map distance of the region under consideration and the resulting number of map units added to the locus of one end of the region, the locus of the detrimental gene is obtained.

Example of this method: In a detrimental where 1/3 of expectation hatch, counts show the gene is between Sp and L (loci 22.0, 72.0), and that the observed ratio in this region is 4 Sp : 5 L

Then: a=3, b=1, c=5, d=4

$$\frac{x}{x+y} = \frac{3 \times 5 - 1 \times 4}{(3-1)(5+4)} = \frac{15-4}{2 \times 9} = \frac{11}{18}$$

$$\frac{11}{18} \times 50 = \frac{275}{9} = 30.56$$

30.6 + 22.0 = 52.6, locus of the detrimental.

To check this: If the detrimental is $\frac{11}{18}$ of the way from one marker to the other, then:

$$3(11/18) + 1(7/18) = c$$

$$1(11/18) + 3(7/18) = d$$

$$33/18 + 7/18 = 40/18 = c$$

$$11/18 + 21/18 = 32/18 = d$$

c/d = 40/32 = 5.4, which should be the observed ratio of a detrimental in this region where 1/3 of expectation survives.

Edmondson, Margaret Crossing over between ac and sc.

Three cases of crossing over between ac and sc have been found recently in this laboratory. Of these, one, found by H. J. Muller,

occurred in a fly which was heterozygous for In-49, and the other two involved crossing over between a chromosome with y ac sc pn w spl rb cx and one containing saw. (See New Mutants section, Report of M. Edmondson.) In this latter count, where more than 50 crossovers per unit have been tallied, none have been found between y and ac, while the two between ac and sc would indicate a separation between them of at most a few hundredths of a unit.

Florschütz-deWeerd, Mrs. J., and Faber, J. Anticipated activity of the peritracheal gland in lethal nonevaginates l(1)ne.

Histological examination of the cells of the peritracheal gland (= large ring-gland cells) showed that it is probable that the considerable increase in vacuolization of these cells preceding puparium formation occurs in lne at least some hours earlier

than in normal $sc^{S1} w^a InS sc^8$ males of the same culture, which served as controls. Also, the moment at which a maximum of vacuolization is reached seems to shift from between one and two hours after puparium formation to the moment of puparium formation itself. It is suggested that these phenomena may have some connection with the premature disintegration of the larval thoracic hypoderm (observed in lne by Sobels et al., DIS-25: 76, 1951), which accounts for the failure of evagination of the imaginal discs.

Freire-Maia, Ademar, and Freire-Maia, Newton. Experiments on sexual activity in D. ananassae.

Experiments with two different strains derived from flies collected in two widely separated Brazilian localities (Recife in the north and Passagem in the south) revealed that both present the same "sexual

activity index," according to the formula by N. Freire-Maia and M. C. Porto (1951). Interestingly enough, this equality is not the result of identical behavior of each sex in the two strains, but of a perfect balance of their different behavior. In the Passagem strain the female is sexually more active than the male, but in the Recife strain the male is found to be more active. The differential behavior of the sexes in the two strains is such that both the strains have the same SAI. This "unexpected" situation leads to the fact that when the two more active sexes (♀ Passagem x ♂ Recife) are put together, the highest sexual activity index is obtained; the lowest index is found when the less active sexes (♀ Recife and ♂ Passagem) are tested in relation to each other. Regarding copulation time, our data show that it is determined mainly by the females. This situation is the opposite of that found in other species.

Freire-Maia, Newton. Chromosomal variation in Brazilian domestic species of *Drosophila*.

The salivary-gland chromosomes of some of the most common Brazilian domestic species have been analyzed and the preliminary results are as follows:

<u>Species</u>	<u>Number of individuals analyzed</u>	<u>Number of different inversions</u>	<u>Mean number of heterozygote inversions per individual in different populations</u>
<i>D. ananassae</i>	571	15*	1.34
<i>D. melanogaster</i>	76	10	0.61
<i>D. immigrans</i>	168	1	0.23**
<i>D. montium</i>	47	1	0.11
<i>D. hydei</i>	57	2	0.04
<i>D. simulans</i>	131	0	0

* Including three pericentric ones.

** From Freire-Maia, Zanardini, and Freire-Maia (this section).

There is no direct relation between the amount of chromosomal variation and the ecological versatility of the species, as was found by da Cunha, Burla, and Dobzhansky (1950) and da Cunha, Brncić, and Salzano (1951) for wild species. The largest chromosomal polymorphism in the domestic species has been detected in *D. ananassae*, an ecologically very specialized species living nearly always in hot climates. On the other hand, the less specialized *D. simulans*, occurring even in some wild habitats as the dominant species (Dobzhansky and Pavan, 1951) does not present inversions. A small sample of 12 individuals from one of these wild habitats where *D. simulans* has been found even at frequencies near 70% is included in the data of the table.

Another contrasting point regarding wild species is that there seems to be no difference in the mean frequency of heterozygote inversions per individual in the several populations analyzed. The best species for such comparisons is *D. ananassae*, where the different local means oscillate around the total mean 1.34, between the narrow limits 1.17-1.60, as determined in small samples of usually less than 50 flies collected from northern to southern Brazil.

Freire-Maia, Newton Pericentric inversions in Brazilian populations of *D. ananassae*.

Examination of the salivary-gland chromosomes of larvae derived from 571 females of *D. ananassae* collected from northern to southern Brazil has shown

three different pericentric inversions in chromosome 3, distributed as follows:

<u>Localities</u>	<u>Region</u>	<u>Number of individuals examined</u>	<u>Time of collection</u>	<u>Pericentric inversions</u>	
Passagem	South	54	June, 1951	A	1 time
Recife	North	35	July, 1951	B	1 time
Antonina	South	62	March, 1952	C	2 times
Antonina	South	25	November, 1951	-	0
Others	North and South	395	---	-	0
		571		3	4 times

These three pericentric inversions seem to be the fourth, fifth, and sixth found in natural populations of *Drosophila*, the others being those described in *D. algonquin* (Miller, 1939) and *D. robusta* (Carson and Stalker, 1947).

Freire-Maia, Newton, Zanardini, Ismael Fabricio, and Freire-Maia, Ademar. The chromosomes of *D. immigrans*.

We have analyzed the chromosomes of *D. immigrans* from several south-Brazilian populations and one from the United States, and found the following karyotype: one pair of medium-length rods (X), one pair

of V's (II), one pair of rods longer than X (III), and one pair of small rods (IV). Chromosome IV is heteropycnotic in mitotic prophase. In salivary-gland nuclei, there are one medium-sized arm (X), two medium-sized arms connected by chromocenter heterochromatin (II), one very long arm almost twice the length of the X (III), and one dot (IV).

This situation is identical to that described by Le Calvez (1948) and Ward (1949), and resembles closely that found by Wharton (1943) in the related species *D. spinofemora*, whose dot has probably been changed into the little rod (IV) of *D. immigrans* by heterochromatin translocation.

Mean number of heterozygote inversions in *D. immigrans* from various localities of southern Brazil: 0.23. Number of inversions: 1. Total sample of individuals analyzed: 168.

Frota-Pessoa, O. Flower-feeding drosophilidae.

In order to determine which drosophilidae develop in flowers, we put in separate bottles, without culture medium, flowers

of several species of plants, most of them from the Botanical Garden of Rio de Janeiro; and subsequently determined the drosophilidae that emerged from the pupae formed. We made a distinction between fresh flowers collected from plants and decaying flowers picked up from the ground. The former are indicated by an asterisk in the following list.

<u>Drosophilid Species</u>	<u>Plant species in which the flies developed</u>
<i>D. ananassae</i>	<i>Cryptostegia grandiflora</i> , <i>Cucurbita pepo</i> ,* <i>Datura arborea</i> , <i>Monodora</i> sp.
<i>D. bromelioides</i>	<i>Allamanda nobilis</i> , <i>Brownea grandiceps</i> , <i>Brunfelsia grandiflora</i> ,* <i>Chodanthus splendens</i> , <i>Cordia superba</i> ,* <i>Cryptostegia grandiflora</i> , <i>Cucurbita pepo</i> ,* <i>Datura arborea</i> , <i>Hedychium coronarium</i> ,* <i>Ipomea ternata</i> ,* <i>Kigelia aethiopica</i> , <i>Luffa cylindrica</i> ,* <i>Thumbergia alata</i> .*
<i>D. cardinoides</i>	<i>Allamanda nobilis</i> , <i>Brownea grandiceps</i> , <i>Chodanthus splendens</i> , <i>Cryptostegia grandiflora</i> , <i>Datura arborea</i> , <i>Kigelia aethiopica</i> , <i>Malvaviscus mollis</i> , <i>Monodora</i> sp.

D. denieri	Cordia superba,* Cucurbita pepo,* Datura arborea.*
Zygothrica dispar	Brunfelsia grandiflora, Hedichium coronarium,* Thumbergia alata.*
Zygothrica prodispar	Brunfelsia grandiflora, Hedichium coronarium,* Thumbergia alata.*

Fung, Sui-Tong Chan. Trans-plantation studies between the normal and hermaphroditic phenotypes.

gene is first visible in the second-instar larvae. Wild-type gonads and imaginal genital discs of male and female are implanted into the late second-instar hermaphroditic hosts. The results show that the gonads and genital discs of either sex do not affect the hermaphroditic host. In reciprocal transplantation, when the hermaphroditic genital disc comes in contact with the host testis, the latter undergoes degenerative changes, being reduced in size and coiled abnormally. Similarly, the hermaphrodite gonads also can produce degenerative changes. As a potential female sex, the hermaphroditic individuals seem to possess an antagonistic principle in the genital duct that may retard or suppress the development of the male gonads when the two are in close contact.

Goldschmidt, Elisabeth, Wahrman, J., Weiss, R., and Lederman-Klein, Ada. The seasonal cycle in the concentration of second-chromosome lethals in D. melanogaster.

district about 10 kilometers distant from Jerusalem (Israel). Starting with wild males or the sons of wild females, homozygotes for wild second chromosomes are produced by the usual series of crosses, employing Cy L/Pm as the marker stock. Five to seven pairs of Cy L/+ flies are transferred twice to fresh culture bottles (molasses-agar-cornmeal), which are kept at $25 \pm 1^{\circ}$ C. The emerging Cy L/+ and +/- flies (500-1000, as a rule) are counted at regular intervals until the emergence of the new generation.

Three samples have been analyzed so far. The numbers and percentages of their lethal (0-3.3% +/- flies), deleterious (0-16.6% +/- flies) and "normal" (less than 26.6% +/- flies) chromosomes are listed in the table.

After examining the first 77 chromosomes of the autumn (1951) sample, we had to change over to a different brand of molasses. This molasses has since been used throughout the experiment, and improved the yield of the bottles to such an extent (316 flies average per bottle as against 144 flies average on the old medium) that the results of the remaining 147 chromosomes from the autumn sample and of the subsequent samples are not comparable with those of the first series. It is seen that in these 77 cultures with poor yield, significantly less lethals were obtained than in all the other series, whereas their total deleterious chromosome content does not differ significantly from that of the other samples.

According to Dubinin (Genetics 31: 21-38, 1946) the content in deleterious chromosomes should be reduced as the result of the inbreeding following the dwindling of the population during the winter season. We believe that there must be a population "bottleneck" in our climate, since we were unable to collect any flies at our site during the cold rainy season (December - February). We discarded the first few flies caught in March, because the

Diploid females carrying the dominant "Hermaphrodite" gene in the third chromosome are sterile and contain homologous male and female sex organs. The phenotypic effect produced by this

A survey of the seasonal cycle in the concentration of lethal and deleterious second chromosomes of a wild D. melanogaster population is in progress. Samples are taken at intervals at Qiryat 'Anavim, a fruit-growing rural

elimination of lethals as homozygotes can be detected only after several generations of inbreeding. Nevertheless, the spring (1952) sample does not differ significantly from the autumn (1951) sample on new medium in any of the classes listed. Nor does our summer (1952) sample reflect a marked rise in deleterious-chromosome content, which should follow the expansion of the population. There is a striking agreement in lethal-gene concentration in all three samples. The slight changes in deleterious-chromosome content are in the direction predicted by Dubinin, but they are not significant under the conditions of the present experiment. The experiment would have been sufficiently sensitive to reveal changes of the order of 10-12% or more in lethal-gene concentration, such as reported by Dubinin from Russia.

Second-chromosome lethals, Qiryat 'Anavim, near Jerusalem

Date of Collecting	Total No. of Chrom.	0-3.3% +/- Flies			0-16.6% +/- Flies			26.7-43.3% +/- Flies		
		No. Chrom.	%	±S.E.	No. Chrom.	%	±S.E.	No. Chrom.	%	±S.E.
autumn 1951 (Oct. 4-23)										
Old medium	77	11	14.29	±3.99	29	37.66	±5.52	32	41.56	±5.62
autumn 1951 (Oct. 4-25)										
Total sample	224	56	25.00	±2.89	88	39.29	±3.26	107	47.77	±3.34
autumn 1951 (Oct. 4-23)										
New medium	147	45	30.61	±3.80	59	40.14	±4.04	75	51.02	±4.13
spring 1952 (Apr. 21 - May 2)	252	76	30.16	±2.89	87	34.52	±2.99	123	50.79	±3.15
summer 1952 (July 24 - Aug. 5)	172	52	30.23	±3.50	62	36.05	±3.66	85	49.42	±3.81
Total										
New medium	571	173	30.30		208	36.43		288	50.44	
Chi-square						1.27823			0.10427	
p for 2 degrees of freedom						0.7-0.5			0.95-0.90	

Green, M. M. The nature of the v^m mutation of Buzzati-Traverso.

Tests have been made on the v^m mutation reported by Buzzati-Traverso (DIS-23), which indicate that the phenotype is not a true mottle but rather the result of the interaction of a v and a car mutant. Both v and car mutants can be extracted from v^m without difficulty, and crossing-over tests indicate that no gross rearrangement is involved. Since the occurrence of v^m was reported in a single F_1 female from an X-rayed wild-type male, it seems reasonable to conclude that v^m represents a case of occurrence of two independent mutations (v and car) simultaneously.

Gunson, Mary M. Local chromosome races of D. subobscura.

A preliminary study of races of D. subobscura from random parts of Scotland, by Miss M. M. Gunson while on a visit to the Institute of Animal Genetics, Edinburgh, gave some indications of local divergence in inversions. Since the work cannot be continued in the immediate future, it has seemed well to record the results here. A strain from the extreme northwest (Strain 90, Ullapool) is characterized by a complex subterminal rearrangement in chromosome A. In the extreme southwest (Strain 135, Stranraer), this rearrangement is much rarer, and is accompanied by a different, simpler rearrangement in the same region of the chromosome; the Stranraer also carries, more frequently, another subterminal inversion in chromosome B. In an intermediate region (Strain 138, Upper Loch Linnhe) the complex inversion in chromosome A is as frequent as it is in the Ullapool strain, and one example of the B inversion has also been found in the sample of 20 individuals examined. It appears probable that this strain is intermediate as regards inversion between the Ullapool and Stranraer races. In districts removed from the west coast, the inversions in chromosome A have not been found, though strain 6 from Dalkeith possesses the B inversion found at Stranraer. An inland race from the north central region (Strain 140, Drumnadrochit) has neither the A nor B chromosome inversions, but has a simple inversion in the distal third of the C chromosome.

Hadorn, E., and Chen, P.S. Phase specificity of lethals.

The respective times of death of a group of 59 nonallelic lethals of the second chromosome of D. melanogaster have been determined. For most of the mutants a distinct phase specificity of action was found. The results showed that a "monophasic lethality" is characteristic of 46 factors and a "diphasic lethality" of 13 factors. There are four distinct periods of development where a clustering of the respective lethal crises of different independent factors occurs. These periods are: (a) end of embryonic development and onset of the first larval instar, (b) beginning of the third larval instar, (c) end of larval life and onset of metamorphosis, and (d) pupal development. The times of death of spontaneous lethals show the same distribution with respect to the main sensitive developmental periods as those of lethals induced with the chemicals phenol and sulfuraphen. The details will be published in the Arch. Jul. Klaus-Stiftg.

Hannah, Aloha, and Stern, C. Mutation of fertility factors in the Y chromosome of D. melanogaster.

Neuhaus (J. Genet. 1939), using the proportion of males without sperm in the vasa efferentia as an index, reported 2.29% incidence of spontaneous sterility mutations for the Y chromosome in D. melanogaster. Even based on ten fertility loci in the Y, as proposed by Neuhaus, this is an exceedingly high mutation rate per locus. The results would suggest that either (1) the mutation rate of individual fertility loci is very high, (2) there are more than ten fertility loci, (3) there is a high incidence of spontaneous breakage of the Y, or (4) the absence of spermatozoa in the vasa efferentia is not a criterion of mutation frequency.

To bypass the fourth factor, an experiment was set up to determine mutation rate of the fertility factors in the Y chromosome by use of progeny tests. From mass matings of attached-X B bb females x Canton males, single-pair matings were made with virgin F₁ Bar, not bobbed, females, which were selected and mated either to brothers or Canton males. As bobbed is an indicator of absence of a Y chromosome in the female, all females with any type of bristle or abdominal abnormality were discarded to prevent the occurrence of XO males. The F₁ parents were removed from the bottles after seven days, and the F₂ flies from each culture, 2-5 days after hatching, were transferred

to a new bottle. If a sterility mutation had occurred in the Y chromosome of a sperm of a P male, all F_2 males (which had their Y chromosome through their mother from the original unmutated sperm) should be sterile, and thus the mass cultures of F_2 flies should yield no offspring. Fertility was determined by the presence of F_3 larvae and pupae. If the first F_3 from a given F_2 culture was sterile, all F_2 flies were inspected, two or three of the females were mated to y or y w males and a second mass mating was made from the remaining F_2 flies.

Of 880 F_3 cultures, three proved to be sterile. In each case the females were fertile. Thus the mutation rate among the 880 Y chromosomes tested was 0.34%. Although this rate, based either on one or on ten loci in the Y, is considerably lower than that reported by Newhaus, it is still higher than in the X chromosome or autosomes. These data suggest that the absence of spermatozoa in the vasa efferentia is not a critical test of mutation of the Y-chromosome fertility factors. This experiment does not differentiate between the first three factors, but in view of recent knowledge of the relatively high incidence of spontaneous breakage of chromosomes it may be that breakage of the Y chromosome is responsible for the apparent high mutability of fertility factors.

Herskowitz, Irwin H. The arrangement of the chromosomes in the sperm head.

In order to decide whether the chromosomes of D. melanogaster regularly arrange themselves end-to-end along the long axis in the sperm head, measurements were made of the length of the chromatin mass in individual spermatozoa containing different numbers of chromosomes. Sperm from the Oregon-R stock (having either an X or a Y chromosome) and from the attached-XY stock of Lindsley and Novitski (having both X and Y, or neither) were stained with aceto-orcein and measured, while in the seminal receptacles of females, under oil immersion, using a camera lucida at a table-level magnification of about 1850 diameters. The following results were obtained:

Stock	No. chromatin masses measured	Per cent							
		11.5-13.4*	13.5-15.4	15.5-17.4	17.5-19.4	19.5-21.4	21.5-23.4	23.5-25.4	25.5-27.4
Ore-R	245		2.9	28.2	48.5	18.4	1.6	0.4	
X·Y	322	3.1	15.2	32.0	31.1	14.0	3.1	1.2	0.3

* Camera lucida lengths are given in mm.

If the chromosomes were lined up one behind the other, and, as has been proposed, have approximately the same relative lengths as they do in metaphase, one would expect a bimodal curve for the X·Y stock, with a distinct depression in the percentage of measurements having the mean value of the Oregon-R sperm (17.5-19.4) and maximum percentages at about 20% above (21.5-23.4) and below (13.5-15.4) this value. The distribution of chromatin mass lengths in both stocks fails to show the bimodality expected for an end-to-end arrangement of metaphase chromosomes. It may therefore be concluded that (if the heterochromatic regions are represented as in metaphase, and probably even if they are not) the chromosomes in the sperm head are usually overlapping.

Hinton, Claude W. A case of mosaicism in D. melanogaster.

A mosaic female was found in a stock of Catcheside's unstable ring, $In(1)X^{c2}, w^{VC}/y$ $sc\ lz^g\ v\ f$. The thoracic and abdominal

regions were bilaterally divided between Notch variegated (heterozygous ring phenotype) and yellow scute forked tissues, while the major portions of both eyes were lozenge; no male tissues were evident. As one might expect on the basis of homozygosis of lozenge, this female was sterile. Such mosaicism may be the result of double fertilization of the egg nucleus and a polar body. An alternative explanation, somatic reduction of the sex chromosomes, is suggested by the occurrence of an anaphase figure in a larval brain smear in which both rods were situated at one pole and both rings (interlocked?) appeared at the other.

Hinton, Claude W. Survival of y-ac deficiencies in mosaics.

Crossing over between $\text{In}(1)\text{sc}^8$ and the Y chromosome yields a chromosome deficient for the region distal to scute and lethal in the male. Several of these sc^8 crossover products, provided by Dr. D. L. Lindsley, were tested for viability in mosaic individuals by employing the unstable ring, $\text{In}(1)\text{X}^{\text{C}2}, \text{w}^{\text{VC}}$, which is eliminated during cleavage mitoses or later, thereby uncovering the deficient chromosome. Control gynandromorphs, carrying $\text{T}(1;3)\text{sc}^{\text{J}4}$, were recovered about twice as frequently as those without this duplication, and all parts of the hypodermis were represented in this group.

Thirteen gynandromorphs were found in which the deficiency was not covered. The male tissues of these mosaic individuals were yellow, strongly reduced in the number and size of hairs and setae, and characterized by some degree of malformation or necrosis where large areas were involved. Mosaic areas included all the dorsal thorax (except the humeral and notopleural regions), the sternopleural region of the thorax, the wing and alula, and the five posterior abdominal tergites. Tergites 5 and 6 were the most frequently affected structures; in seven of the gynandromorphs, only these regions were mosaic. It is clear that this deficiency exerts considerable damage to the tissues carrying it, although it is not cell lethal.

Hipsch, Rita. Linkage groups and chromosomes of D. subobscura.

I have tried to assign the linkage groups I-V, which have been settled by H. Spurway-Haldane and her collaborators, to the mapped chromosomes A, E, J, O, U of F. Mainx and fellow-workers. Stocks used came from the laboratory of Professor J. B. S. Haldane. Each linkage group has been marked by some mutated loci. These were crossed with stocks that were structurally homozygous for certain arrangements in certain chromosomes, but among themselves different in some large inversions in certain chromosomes. Through distortions of crossover values, it was possible to relate linkage groups with chromosomes. Linkage group II belongs to chromosome J, linkage group V to chromosome O; A is the X chromosome (linkage group I). Linkage group IV seems to belong to chromosome U, and linkage group III to chromosome E; further tests of these groups are necessary.

Judd, Burke H. Crossover products from $\text{T}(1;4)\text{w}^{\text{VD}3}$.

Two w^+ males have been recovered from females heterozygous for $\text{T}(1;4)\text{w}^{\text{VD}3}$ and y w spl sn. One male was the result of a crossover between w and spl, and the other was the product of a crossover between spl and the break point of the translocation. Stocks have been made of both these crossover products and it is clear that mottling for white does not occur in the absence of the translocation. Experiments are now under way to insert various alleles of white into this translocated chromosome.

King, R. C. Sex-linked recessive lethal mutations induced by thermal neutrons in D. melanogaster.

Experiments were run to assay the mutagenic effectiveness of thermal neutrons from the Brookhaven nuclear reactor. Thermal neutron doses of 1×10^{13} n/cm² produced 2.37% sex-linked recessive lethal mutations in sperm (2439 X chromosomes tested) and 1.07% in eggs collected within six days after treatment (4017 X chromosomes tested). The M-5 method of detecting sex-linked lethals was employed. *Drosophila* were fed on medium containing 0.005 M Li Cl or H₃BO₃ for their entire larval stage and that portion of their adult stage previous to treatment in the thermal column. Neutron-treated lithium-fed males, boron-fed males, and boron-fed females showed no significant increase in mutation rate over treated males and females previously fed normal medium. For all data the mutation rate expected from the gamma contamination in the thermal column was subtracted from the observed rate. The relation of 0.00215% lethals/r (Spencer and Stern, Genetics 33: 43-74) was used in this correction. Thus, employing the criterion of sex-linked recessive lethal mutations induced in *Drosophila* sperm, one finds 1×10^{10} n/cm² approximately equivalent to one roentgen. Under present conditions, about 15% of the total sex-linked lethals recovered are due to gamma rays contaminating the thermal column. Thermal neutron treatment induced mutations to Bg and lz and a case of mosaicism. The mosaic individual was found in the F₁ of a cross between a normally fed, neutron-treated C.S. male and an M5 female. Both eyes, which were red and intermediate Bar in shape, contained sectors of apricot facets. The individual had sex combs and male genitalia. The left posterior scutellar bristle was missing. (Research carried out at Brookhaven National Laboratory under the auspices of the U. S. Atomic Energy Commission.)

Kunze-Mühl, Elfriede.
Cytological identification of genetically discovered inversions in D. subobscura.

Stocks in which J. B. S. Haldane and collaborators have detected certain inversions genetically have been investigated cytologically and crossed with the structurally homozygous stock "Küssnacht." In X(3) of

Haldane is identical with inversion A 1 of our map; In X(1) of Haldane with inversion A 2. These inversions are very common in wild populations of Great Britain and Central Europe. The arrangement In X(1+2) seems to be identical with the stock "Küssnacht." The chromosome map of D. subobscura with all inversions found by now will be published soon by F. Mainx and collaborators at the Z.i.A.V.L.

Kunze-Mühl, Elfriede.
Inversions in D. littoralis.

Natural populations of D. littoralis in Europe show many different inversions. In investigating one stock from Styria and one from upper Italy, at least nine different simple inversions were found. They are distributed on all chromosomes, but no overlapping inversion occurs. Most of the inversions are rather small. Two large inversions are in each of two long elements near the distal end. Another long element very often has two smaller inversions. The shortest element has a very small inversion. Most of the inversions occur in both stocks. After the stocks were crossed, no additional inversions were seen. Only one of the above-mentioned small inversions in a long element is to be found only in the Austrian stock, with about 50% frequency of heterozygotes. It does not occur in the Italian stock. The frequencies of heterozygotes are between ca. 5% and ca. 50% for the different inversions. One large inversion in a long element occurs with 50% frequency of heterozygotes in both stocks. The pairing of salivary chromosomes is very good in D. littoralis.

Lefevre, G., Jr., and Hanks, G. D.
Irradiation of Abruptex and
apricot.

Abruptex (Ax) is a one-band duplication of band 3C7, deficiency for which produces Notch. However, Schultz has concluded that Ax results from a position

effect on 3C7 rather than from a true duplication of the Notch locus. This view is supported by the results of irradiation of Ax. Notch mutations were detected after 5000-r exposure of Ax and Canton-S wild-type males. Examining approximately 25,000 F₁ females in each experiment, the frequency of Notch mutations was found to be approximately one per 1000 in each series.

Apricot (w^a) is an intermediate allele of white. Work of Timofeeff-Ressovsky indicated that intermediate alleles of w mutate less frequently than w⁺. Glembosky, however, concluded that cherry (w^{ch}) mutates at the same rate as w⁺. Equivalent 5000-r exposures of w^a and Canton-S + produced nearly equal numbers of white mutations, approximately 1/1000, just like the Notches. However, a difference was noted in the ratio of male-lethal to male-viable white mutants in the two experiments. White mutants from w^a were preponderantly male-viable (2/3), while from w⁺ only 1/2 were male-viable.

The existence of w⁺ alleles differing in mutability has also been demonstrated by Timofeeff-Ressovsky, and it appears that a similar difference exists with respect to w^x alleles. Thus, mutability of an intermediate white allele may be related to the mutability of the w⁺ from which it arose, and is not necessarily less than that of the w⁺ allele. Intermediate alleles resulting from X-radiation, however, may have an altered mutability. Indeed, mutability of white alleles may change without change in phenotype.

Lefevre, G., Jr., and Ratty, F. J., Jr. Notch mutations produced in
inverted X chromosomes.

X-ray doses of 5000 r produce one Notch mutation in approximately 1000 irradiated mature sperm containing wild-type or Ax X chromosomes (see

note of Lefevre and Hanks). Sitko has reported that Notches are induced in w^{m4} X chromosomes with markedly higher frequency. In w^{m4} the Notch locus, band 3C7, has been brought by inversion close to the proximal heterochromatin, but no position effect on Notch or split is evident in w^{m4}. Rst³ is a similar inversion, and band 3C7 is slightly closer to the heterochromatin than it is in w^{m4}. Therefore, w^{m4} and rst³ males were exposed to 5000-r doses of X-rays, and about 25,000 F₁ females were examined in each series. Notch and white-Notch mutations were detected. The total number of Notch mutations produced in w^{m4} was very similar to that in rst³; in each case the frequency was 3.3 times higher than in Canton-S +. Thus, proximity of 3C7 to heterochromatin stimulates the X-ray induction of N mutants. However, in w^{m4} the excess number of Notches as compared with wild-type was entirely composed of white-Notch mutants. Notches in w^{m4} which were not simultaneously white were found with a frequency of 1/1000, the same as in +. Therefore, the stimulation of Notches in the inversion stocks was not a consequence of some position effect, but rather resulted from the increased likelihood that deficiencies including 3C7 will be heterozygously viable. In wild-type X chromosomes, band 3C7 is in an entirely euchromatic neighborhood, and deficiencies exceeding about 50 bands do not survive even heterozygously (see list of N mutants in Bridges and Brehme). In w^{m4} and rst³, however, Notch deficiencies of much greater actual extent may lack comparatively little euchromatin, and thus survive to be detected.

Miers, H. The mutagenic action of a nitrogen mustard compound fed to imagines.

Adult males of D. melanogaster were fed for 24 hours on glass filter plates saturated with an aqueous solution of

[illegible]

Species	1	2	3	4	5	6	7	8	9	10	11
<i>D. rufa</i>	+		+								
<i>D. auraria</i> , Type A	+	+		+	+					+	+
<i>D. auraria</i> , Type B		+		+	+						
<i>D. suzukii</i>	+	+								+	
<i>D. bifasciata</i>		+									
Sp. close to <i>D. athabasca</i>						+					
<i>D. transversa</i> , Type A	+	+	+		+	+	+	+			+
<i>D. transversa</i> , Type B		+				+					
<i>D. virilis</i>	+	+				+			+		
<i>D. testacea</i>	+	+				+					+
<i>D. funebris</i>	+	+	+		+				+		
<i>D. hydei</i>		+									
<i>D. sordidula</i>		+	+		+		+				
<i>D. grandis</i> ?							+				
<i>D. immigrans</i>	+	+			+					+	+
<i>D. histrio</i> , new type						+					

Malagolowkin, C. The male genitalia of the subgenus *Drosophila*.

A study of the genitalia of one species of each of sixteen groups of the subgenus *Drosophila* was carried out. The relative relationships among the groups

were evaluated, using fifty characters of the genitalia. In general, the results obtained prove the correctness of the earlier classification within the subgenus (Hsu, 1949), but in some instances better differentiation among the groups is possible.

Maynard Smith, J. A new type of gynandromorph in *D. subobscura*.

A gynandromorph was found which was also a mosaic for markers on autosome 5. The markers concerned were *ch* (bright red

eyes), *Ba* (absence of macrochaetae, untidiness of bristles on costal veins), and *Dl* (triangular thickenings at junctions of wing veins, reduction of tarsal joints). The gynandromorph arose from the mating *ch* female x *ch ++/+ Ba Dl* male. The abdomen was female, and male sex-combs were present on the first pair of legs. The eyes were wild-type. The right wing was *Ba Dl*, and the left was larger and wild-type. All macrochaetae were present. The legs were *Dl*. The right haltere was absent. A gynandromorph which is also a mosaic for autosomal markers for which only the father was heterozygous is most easily explained by double fertilization, either of the egg and second polar body, or of the first two cleavage nuclei. In this case the two sperm concerned were *X; ch ++* and *Y; + Ba Dl*. The former fertilization gave rise to the abdomen, left wing, and top of the thorax, and the latter to the right wing, legs, and head. The absence of the right haltere is explained by its position on the border between the two tissues.

Maynard Smith, J. Pseudo-allelomorphism of the genes *ar* and *ant* in *D. subobscura*.

The following mutants on chromosome 5 were used: *Ba* (absence of macrochaetae; dominant, homozygous lethal), *ar* (aristae thickened, sometimes leglike;

recessive, incompletely penetrant), *ant* (antennae leglike, macrochaetae reduced in size and number; recessive, homozygous sterile). From mating *ar/ar* females x *+ /Ba ant* males, 140 *Ba* flies were obtained, all of which had deformed aristae similar to *ar/ar* flies; their non-*Ba* sibs had wild-type aristae. *Ba* females from this cross were mated to *ar/ar* males. Out of a total of 1679 offspring, 18 had wild-type aristae. These 18 flies were test-mated to *ar/ar* mates to determine whether they were crossovers or normal overlaps. The

results were: of 4 Ba flies test-mated, 3 were crossovers and 1 left no progeny; of 14 non-Ba flies test-mated, 12 were normal overlaps and 2 left no progeny. It follows that out of 1679 flies, 3 and probably 4 crossovers of the type Ba ++/+ ar + were obtained. The reciprocal crossover, + ar ant/+ ar +, could not be recognized if it occurred. The recombination % between ar and ant is thus of the order $2 \times 4/1679$, or 0.5%.

Meyer, Helen U. A case of crossing over in a male *Drosophila* detected with the aid of second-chromosome markers.

the influence of irradiation.

The offspring from a male whose pole cells had been irradiated with ultraviolet (mainly 2900-3100 Å) showed that crossing over involving the two second chromosomes must have occurred in the course of spermatogenesis. This might or might not have been due to

The genotype of the male was $crs/dp^{Th} Cy pr Bl lt^3 cn^2 L^4 sp^2(Ins)$ and the genetic constitution of the females to which it had been mated was $S^2 Cy, InL lt^3 cn bw sy/dp^{Th} Sp cn bw sp$. Besides the expected classes, $crs/S^2 Cy, InL lt^3 cn bw sp$ and $crs/dp^{Th} Sp cn bw sp$ of both sexes, several exceptional flies, both males and females, were found among the offspring. They were of the constitution $lt^3 cn^2 L^4 InCyR sp^2/$ with either of the maternal second chromosomes, $S^2 Cy....$ or $dp^{Th} Sp....$, and must have been caused by crossing over between the two second chromosomes in the germ line of the parent male. The reciprocal crossover combination was not recovered ($dp^{Th} Cy pr Bl crs$) but would have been lethal in combination with either one of the maternal chromosomes.

Three broods had originally been made in order to get many offspring from this male, and three more were made after the crossover offspring were noted. The same females were used for the first three broods, which covered a month from the time that the pole cells of the male had been irradiated, whereas new females were used in broods 4 to 6. No crossover offspring was found from these later broods. The number of crossover offspring seemed to decrease from the first to the later broods; 7 flies of crossover type were found among approximately 80 in the first brood (first 5 days of the adult life of the male), 2 among 50 in the second, and one among 40 F_1 flies in the third. The fourth to sixth broods gave none in a total of about 70. This distribution makes it likely that crossing over occurred as a single event early during multiplication of the germ cells and that this particular cell did not multiply throughout the whole span of the male's life, which agrees with our earlier findings that fewer of the original germ cells furnish the spermatozoa in aged males.

Work of Friesen and later investigators has shown that crossing over, when it occurs in the male, can take place in the spermatogonia. The fact that in our case both males and females of the exceptional type were found, showing that this resulting $lt^3 cn^2 L^4 InCyR sp^2$ chromosome did combine with either the X or the Y of the paternal genome, furnishes additional support for Friesen's conclusions. This case of crossing over could not have occurred just prior to the meiotic divisions unless we assume that it happened repeatedly during the life cycle--a very unlikely assumption since this male was heterozygous for inversions in the second chromosome, and also in view of the frequency and time distribution of its crossover offspring.

Milani, R. Genes for benign melanic tumors in sympatric populations of *D. melanogaster* and *D. simulans*.

Trappings of *Drosophila* were made in August, 1952, on an area approximately 50 x 150 meters, in the vicinity of a country house, in a broad valley between

small hills. Orchards covered part of the area; the rest was open fields divided by hedges with occasional fruit trees, or by rows of mulberry. At the time of collection much fallen fruit lay on the ground. The ecological environment was very favorable to development of melanogaster and simulans populations. Forty traps were distributed at 11 stations. The bait was either (1) fermented pear or peach pulp or (2) fermented pear or peach juice + agar + Nipagine. Nipagine was added to the pulp in a few of the traps. Very few or no melanogaster and simulans were collected in such traps, but many eggs developed. Melanogaster flies (two females, three males) with melanotic tumors in the abdomen were trapped at three stations (two a few meters apart, the third some hundred meters away). The flies developing on the baits were observed. Out of 40 such "F₁" cultures, 10 included melanogaster and 20 included simulans affected with tumors; 4 gave both. All the trapping stations were represented by such traps. The tumors can be inherited. The genetic control seems to be multifactorial. Strains started with single individuals seem to differ in expressivity, penetrance, and genetic factors.

Moriwaki, D., Okada, T., and Kurokawa, H. Two types of D. auraria.

Two morphologically different types of D. auraria Peng have been recognized in Japan, and named types A and B. Type

A--Male: hexasternum hairy; novasternum without spines; aedeagus (mesosome) without lateral claws; anterior parameres simple. Female: egg-guides apically quadrate. Type B--Male: hexasternum bare; novasternum with a pair of spines; aedeagus with a pair of lateral claws; anterior parameres bifid at tips. Female: egg-guides apically triangular. Habitats of these two types are sometimes overlapping, but those of B are usually remoter from human habitation than those of A. No differences of karyotypes were observed between A and B. Experimental crossing between A and B, especially between B females and A males, is often successful, producing a hybrid which has features somewhat intermediate between A and B. Another type, named type C, having features similar to this hybrid is sometimes found in nature.

Moriwaki, D., Okada, T., Ohba, S., and Kurokawa, H. Bifasciata- and alpina-like species of Drosophila found in Japan.

The flies belonging to the "obscura" group found in Japan, on which we reported in DIS-25, have been found to form one species, D. bifasciata.

Comparing our species with bifasciata from Europe, we found hardly any difference between them with regard to general appearance, fine structures of male genitalia, and karyotypes. Besides this, the crossability between them was found to be almost normal.

During the past summer we collected the same species at several localities in mountainous districts of Japan, namely, Hakodasan, Kiso-komagadake, Yatsugadake, Kumotori-yama, etc. It seems that the further south the habitat is, the higher the altitude tends to be. At any rate, the fact that bifasciata, having been recognized as a European species, is also found in the far east, Japan, means that this is a "trans-palaeartic species," as Professor Dobzhansky suggested in personal communication. Consequently, we infer that one of the two strains described by Frolowa and Astaurov (1930) as D. obscura, from flies collected near Moscow, may be bifasciata, partly because it has the same karyotype.

Another species belonging to the "obscura" group was found this summer at Kiso-komagadake and Yatsugadake. We consider that it may be identified as D. alpina, which is found at Voralpen in Switzerland (Burla, 1948), or very

Muller, H. J. Breeding systems for detection of sex-linked lethals in successive generations.

In experiments in which low mutation rates (e.g., "spontaneous" ones) are being measured it is desirable, for the accumulation of large-scale data, to have systems of breeding which involve a regular repetition.

and in which both the mating of the females with the wrong kind of males, and the occurrence of the wrong types of segregation, are either precluded or rendered relatively harmless. When lethals arising in the X chromosome derived from the male are to be detected, this involves a cycle of breeding, that is, an alternation of generations. For the X's of the "P₁" males must be caused to enter their daughters ("F₁"), and these daughters (now termed "P₂") are individually tested for lethals by crossing with other ("P₂") males, having X's which, for the purpose of recognizing nondisjunction, are visibly different from those of the P₁ males, but like one of the X's of the P₁ females. Thus the second-generation daughters ("F₂" or "P₃") used for breeding are like the P₁ females, and may again be bred to males like the P₁ males, for continuation of the testing. A scheme of this kind, slightly modified after that developed for Byers and Muller's work on the effect on the mutation rate of temperature applied during the aging of spermatozoa (Genetics 37: 570-571, 1952) is given below. This allows at the same time the detection of lethals arising in the X chromosome derived from the female parent. The phenotypes are given in parentheses.

$$P_1: \frac{("Binsky") y sc^{S1} B In49 sc^8}{y v f \cdot y^L} \text{♀ } (y^{\dot{B}}) \times \frac{y^3 \cdot y^L}{x^+ \cdot y^3} \text{♂ (+)}$$

$$F_1 (= P_2): \frac{(\text{"Binsey"}) \text{ y sc}^{S1} \text{ B In49 sc}^8}{X^+ \cdot Y^S} \quad \text{♀ (B)} \times \frac{Y^{+scV1} \cdot Y^S}{y \text{ v f} \cdot Y^L} \quad \text{♂ (v f)}$$

(The F₁ females are automatically virgin, in effect, since their brothers are sterile.)

F₂: Females like those of P₁, and again automatically "virgin," to be mated by males like those of P₁. In each generation the males are derived from a stock containing the given type of male mated by females with attached X's (yf:=). When a male or female used as parent contains an extra Y this fact becomes evident when its offspring are examined, and the line represented by the given culture is discontinued.

In the above scheme, when a lethal is found or suspected in the X chromosome which a tested female had derived from her father, the lethality can be verified, balanced stock of the lethal established, and its locus simultaneously determined, by crossing in bottles, en masse, several of the automatically virgin non-Bar, presumably lethal-containing daughters (F_{n+1}) of this female (these daughters having the composition $X^+ \cdot Y^S/y \ v \ f \cdot \bar{Y}^L$ to males of the composition $y \ s c^{S1} \ B \ f \ In49 \ v$ (our stock no. c63 in DIS-26). The next-generation daughters (F_{n+2}) of appropriate phenotype to contain the lethal-bearing chromosome must then be obtained as virgins, and backcrossed to males like their fathers; this constitutes the balanced stock. Only when the lethal proves to be to the right of forked must individual matings be made up at this point, to be sure that the lethal is present throughout.

When the lethal is in the X chromosome derived from the mother--that is,

in the "Binscy" chromosome--the Bar daughters (F_{n+1}), which also are automatically "virgin," are crossed to oc ptg males to verify the existence of the lethal. The Bar females of the next generation (F_{n+2}), which must then be collected as virgins, are again crossed to oc ptg males; this establishes a balanced stock of the lethal. Its locus can, preferably, be determined by a cross with males of the composition $sc^{S1} In49 v$ (our stock no. c62 in DIS-26), followed by a "four-point" count of the second-generation males derived from the Bar first-generation females of this cross.

When it is desired to measure mutation rate only in X chromosomes of maternal origin, a more efficient system is provided by our stock termed "fac" (denoting "female-accumulation," no. f51 in DIS-26). Reference to its composition will show that in this stock there is permanent but not exclusive nondisjunction. The disjunctionally produced types are sterile, but not lethal unless a lethal has arisen in the course of the experiment, provided the experiment was started by breeding individual females and noting that they produced both expected types of "regular" sons. No cycle is involved here, there being only nondisjunctive inheritance of the X's by the flies which are fertile. Accordingly, lethals (as well as visibles) can accumulate in the chromosomes of the females there being only that relatively small amount of natural selection against them which would be caused by their detrimental effects when in heterozygous condition. This gives the advantage of allowing the operator to score for lethals after the passage of a given number of generations instead of in each generation. Of course, as in all such accumulation systems, there should be as many separate lines maintained as the number of females to be bred individually after the given interval, one line having been derived from each female which at the start was bred individually and proved to be nonlethal, and one female of each line being tested at the end of the interval. A further advantage of this method, for studying mutation rate in the female, is that both the X's of the female provide material for the study instead of (as is ordinarily the case) only one.

Stocks have also been constructed which readily allow the detection of lethal and other mutations in the X chromosome of the male without the need (present in system 1) of introducing males from stock cultures. Here the alternation of generations is automatic, and the females are allowed to cross with their brothers. If, however, it is desired to apply some special treatment to the adult males before breeding them it is necessary with these stocks, unlike those of the first system given, to collect the females as virgins before they have a chance to mate. As these stocks are still being improved, a presentation of them will be postponed until the next issue.

Nakamura, K., Imaizumi, T., and Takanami, M. Changes in amino acids during the early development of D. virilis.

Quantitative analyses were carried out of the changes in amino acids during early development. Four egg stages-- (1) just after fertilization, (2) protoplasm contraction, (3) blastoderm, and (4) germ-band formation--were chosen. Two thousand dechorionated eggs in each stage (dry weight about 4 mg) were hydrolyzed by HCl, and then the following amino acids were measured by the method of microbiological assay. According to the results listed below, valine, isoleucine, and lysine are stable and show no remarkable change. On the contrary, the others are changeable, that is, decrease or increase in each stage. Glutamic acid, especially, conspicuously decreases in the stage of plasm contraction and increases in the blastoderm stage. The changeable amino acids, such as glutamic acid, glycine, serine, etc. that are synthesized, disintegrated, or transformed in each stage will be adopted as indicators in fundamental studies of normal development and of embryonic lethal phenomena. Studies of hereditary

lethal phenomena which are based on changes in substances are in progress in our laboratory.

	valine	isoleucine	lysine	glutamic acid	aspartic acid
1	3.4%*	4.0%	4.7%	4.0%	10.4%
2	3.2	3.8	4.7	1.5	10.2
3	3.1	4.0	4.5	5.6	9.5
4	3.2	4.0	4.4	4.7	10.4

	serine	glycine	cystine	arginine
1	3.1%	3.9%	0.8%	8.0%
2	4.1	2.8	1.0	7.0
3	3.2	5.0	1.3	5.9
4	4.1	3.8	1.1	6.1

*Weight percentage

Novitski, E. X-ray-induced lethal rate in ring chromosomes.

Experiments of Offerman and Muller show that the ring structure of a chromosome does not decrease the frequency of recoverable induced lethals and deficiencies. A marked

decrease is expected if it is assumed that (a) the vast majority of such changes arise from restituted breaks, (b) such restitutions are lost more often in rings than normal chromosomes, as sex-ratio experiments of the type done by Bauer suggest, and (c) there are no other differences between the two kinds of chromosomes of such a nature as to compensate for any losses of changes induced in the ring. Some experiments made by the writer in 1949 gave the following results. The frequency of lethals induced by 3600 r in X^{c2} was 9.3% (152/1632); a parallel set with a normal X chromosome irradiated under the same conditions gave 10.0% (323/3285). The similarity of the results in the two sets indicates that at least one of the above assumptions is incorrect.

Nozawa, K. Changes in Curly expressivity in D. melanogaster.

The dominant wing character, Curly, in the genotype $Cy/1$ (a lethal gene in the second chromosome: $1(2)50c$) changes greatly in expressivity in the course of emergence. The

earliest flies to emerge have almost 100% Curly wings, then as emergence goes on the flies become more and more normal in appearance; but, with the changes in culture conditions, expressivity of the character returns to a higher level, until at last the flies show 100% expressivity again. It seems probable that Curly expressivity is influenced by the nutritional conditions of the larvae, so that the above-mentioned phenomenon may be ascribed to changes in the balance between the quantity of yeast and the size of the larval population. This assumption is confirmed by the fact that when the larvae are sated with food all the emerging flies have completely Curly wings.

On the other hand, it is observed that Curly expressivity in flies with the genotype $Cy/1$ ($1(2)50c$) decreases generation after generation while breeding methods remain constant. This is seen not only in two inbreeding lines of successive generations but also in the stock mass culture; however, the rate at which expressivity is lost is the slower in the latter case. Research into the cause of this change is in progress, but it may be considered that the effects of inbreeding, at least, are taking part.

Oprecht, E., and Hadorn, H.
Stock-specific defense reactions against a parasite.

a Swiss stock (Seewelen) only about 1-5% of the larvae are able to encapsulate the parasite, in a stock from Camargue (France) up to 60% of the larvae form melanotic capsules around the egg of the parasite, thereby killing its embryo. The inheritance of these defensive characters seems to be based on a polygenic system.

Oshima, C. Genetic analysis of the dimorphism of color pattern in D. rufa.

dark-brownish longitudinal stripe on pleurae of the thorax. The female shows two types of color pattern, dark and light, on the last two abdominal segments. It was found by breeding tests that these two types are produced by a set of allelic genes D and d, located on an autosome. The homozygotes (D/D) showing the black color pattern were not phenotypically distinguishable from the heterozygotes (D/d), but were easily discriminated from the homozygotes (d/d) showing no black color pattern, something like the polymorphism in D. polymorpha (da Cunha, 1949). On the other hand, all males had the black color pattern in the last abdominal segment, irrespective of their genic compositions. Fifty per cent dark and 50 per cent light flies (the homozygotes D/D and d/d) were placed in a population cage used by Moree (1950) in Washington University, and this experiment has been carried on in a constant-temperature room held at 25° C. The proportions of dark flies rose and the populations were thought to reach equilibrium at about 60-65 per cent of the dark and about 40-35 per cent of the light type. This result seems to indicate that the dark heterozygotes (D/d) have the highest adaptive value, the light homozygotes (d/d) are next, and the dark homozygotes (D/D) are lowest in adaptive value.

Oster, Irwin I. Chemicals found inactive as mutagens in *Drosophila*.

engaged in testing compounds for their mutagenic activity. Since in many cases the publication of negative data is not warranted, there is often a repetition of effort with similar negative results. In order to minimize this and to facilitate the further compilation of data, it is suggested that information about compounds that have been shown to be inactive as mutagens be given in DIS in condensed form. Authors submitting such data for presentation should, it is proposed, give all the information called for in the form below as accurately and concisely as possible. Readers can consult the authors for more detailed information on these compounds. A sample containing our recent results is given below. It may be assumed that, except where otherwise noted, the species used was melanogaster and the mutants looked for were sex-linked lethals.

It was found that wild stocks of D. melanogaster differ with respect to a defense reaction against the parasitic wasp, Pseudeucoila bochei. Whereas in

D. rufa is a new species in Japan described by Kikkawa and Peng (1938). This species resembles D. auraria and D. montium in phenotype, except for a broad

It is suggested that it would be useful to inaugurate a new service in some of the forthcoming issues of DIS. A considerable number of workers are now

Chemical, and property for which selected	Dose(1 part to each 5 parts food)	Toxicity of dose used	Method of treatment	Sex treated	Days be- tween end of treat- ment and breeding	Lethals/Total chromosomes tested	
						Exper.	Control
barbituric acid (anti- metabolite of uracil)	.4 g/ 10 cc abso- lute alco- hol	non- toxic	fed in sugar- agar medium	adult males	1-3	1/506	3/606
chloroxan- thine (anti- metabolite of xanthine)	.5 g/ 10 cc H ₂ O	LD ₅₀	fed in sugar- agar medium	adult males	1-3	1/197	3/453
ethionine (antimeta- bolite of methionine)	.5 g/ 10 cc H ₂ O	LD ₅₀	fed in sugar- agar medium	adult males	1-3	0/182	3/453

Pipkin, S. B. *Drosophila*
collections in Micronesia.

A year's intensive collection from native-
fruit-baited trap cans on Moen Island, Truk,
Caroline Islands yielded only D. ananassae,

D. anuda, D. melanogaster, and a new species near D. hypocausta to be des-
cribed as D. stonei. These species were also found on Tol and Dublon islands
of the Truk atoll. Collections for two months in the Palau Islands, Western
Caroline Islands, yielded D. ananassae, D. bipectinata, and D. anuda in Koror
and Babelthaup. By sweeping over fallen breadfruit, D. ananassae and D.
anuda were collected by A. C. Pipkin at Lamotrek, and D. ananassae only at
Paralep, Satawal, and Ifalik in the western Carolines, and at Guam in the
Mariannas.

Ratty, Frank J., Jr. Analysis
of the white locus by defi-
ciency test.

The white locus has been analyzed by com-
bining various cytologically known and un-
known white deficiencies and mutants from
Canton-S wild type, $In(1)w^{m4}$ and $In(1)rst^3$

with $Df(w)St$ (lacking bands 3C2-3). Since the homozygous w deficiency condi-
tion is lethal, these females survive because of the presence of an autosomal
duplication containing the w^+ locus. However, an occasional white-eyed fe-
male occurs which could only be homozygous w deficient, lacking the duplica-
tion.

Three cytologically known w deficiencies, produced in a normal X chromo-
some, were obtained from M. Demerec. They were deficiencies extending from
salivary band 3C1 for varying extents to the left. The combination of these
deficiencies with $Df(w)St$ produced 9.7% white-eyed (nonduplicated) females.
Thus, in this situation, no cytologically homozygous deficiency exists, al-
though there might be homozygous deficiency for material between 3C1 and 3C2.
The above percentage is to be compared with 7.8% white-eyed females for cyto-
logically unknown w deficiencies and 22.0% for w mutants produced in Canton-
S +. The last class of females allows a distinction to be drawn between a
true w deficiency and a w mutant closely linked with an independent lethal
factor. If it is assumed that all the female classes were equally viable,
then 25% of the female offspring should have been white-eyed.

An analysis of the w deficiencies produced in rst^3 (left break between 3C3 and 3C4) and w^{n4} (left break between 3C1 and 3C2) shows that less than 0.4% white-eyed females were produced. This percentage is similar for w-N deficiencies produced in w^{n4} . Crossover analysis of 11 w^{n4} w mutants indicates that none are effects in 3C1. It is therefore indicated that salivary bands 3C2-3 are regularly involved in w deficiencies produced in w^{n4} and rst^3 .

The results of this study have indicated that the white locus must have a multiple nature because of the presence of viable nonduplication homozygous w deficiency females in certain crosses. These females are interpreted as containing two nonoverlapping w deficiencies, thus indicating a dual basis for this locus.

Redfield, Helen. Effects of the Curly and Payne inversions on crossing over in the left end of the X chromosome in D. melanogaster.

The left end of the X chromosome has, perhaps, been worked on in greater detail than any other chromosome region in D. melanogaster, and hence is one of the most favorable sections

for studies concerning the relation between the genes and the chromatin. It has the further advantage, although it is not unique in this respect (and indeed may be typical), of showing a marked disproportion between genetic distances and the observed salivary-chromosome distances. Thus the standard linkage map gives the two short regions from yellow to white and from white to split as equivalent (1.5 units), whereas the salivary map shows the yellow-to-white distance (94± bands) to be approximately 20 times as great as the white-tp-split distance (5± bands). We know from previous work that the Curly and Payne inversions, in 2 and 3 respectively, produce a striking increase in crossover values, both alone and particularly in combination, in the X. Will there, then, be a selective increase produced by these inversions in the y-w and w-spl crossover values; that is, can we draw any conclusions as to whether the increase with heterologous inversions is a function of genetic length or of salivary length?

Four types of females of the composition y w/spl were tested for crossing over in the y-w-spl region: those with no inversions, those containing the Curly inversions, those with the Payne inversions, and those with both the Curly and the Payne inversions. Cultures were of individual females and were subcultured after five days. No N for any of the 8 sets was below 3000; the greatest N was 4300--these large numbers of F_1 were unfortunately necessary in dealing with the very short regions involved. The outcome may be briefly summarized. For the first cultures, the increases in crossing over compared with the control are: (1) for Cy--y-w, 120%; w-spl, 225%; (2) for Payne--y-w, 180%; w-spl, 175%; (3) for Cy; Payne--y-w, 500%; w-spl, 525%. For the subcultures the increases are: (1) for Cy--y-w, 75%; w-spl, 75%; (2) for Payne--y-w, 100%; w-spl, 100%; (3) for Cy; Payne--y-w, 363%; w-spl, 250%. Thus, ignoring for the moment the results with Curly alone for the first cultures, and possibly of Curly Payne for the subcultures, the increases in the yellow-white value are similar in magnitude to those in the white-split value. None of the increases, nor indeed of the apparent discrepancies just mentioned, would seem to be correlated with the clumping of crossovers from isolated females; thus the results are presumably not to be explained as the sequel to oblong crossing over. So far as the data go they suggest, then, that increases with heterologous inversions depend more upon general position in the chromosome, or upon genetic length, than upon actual distance along the chromosome, at least as it is measured in the salivary glands. The release of crossovers which results when this particular factor (heterologous inversions) influences crossing over is not proportional to the actual distance

apart of the genes, but is apparently proportional to their ability to separate from each other under conditions of structural homozygosis.

Redfield, Helen. No effect of the presence of extra Y chromosomes on chromosome-4 crossing over in D. melanogaster.

The marked increase in crossing over between the two fourth chromosomes of diplo-4 triploids (Schultz, Sturtevant), as well as various interchromosomal effects, led to the hope that a tool for the solution of certain

baffling problems of crossing over might be provided by studies of the effects of increases of chromatin, and particularly of heterochromatin, to the diploid.

Accordingly, females were derived in which the presence of two extra Y chromosomes could be detected; they were otherwise of the composition $In(1)_w^{m4w}/w; ey^R ci/+$. Crossing over was measured between the fourth-chromosome genes *eyeless* and *cubitus-interruptus*, both in females with two Y's (1295 F_1) and in control females without any Y. No crossing over was found in either type; ten apparent crossovers were tested genetically and were shown not to be crossovers, but due to overlap of ey^R or *ci* with wild-type. Thus the data would indicate that there is no measurable effect of the presence of two extra Y chromosomes on crossing over between the fourth chromosomes of diploid females.

Sandler, L., and Zimmering, S. The effect of cold shock on crossing over.

Prior to this time, females deseminated or "virginized" by cold shock have not generally been used in crossover experiments because of the possibility that virginizing

might have an effect on crossing over. Therefore, a test was made to determine whether there might be such an effect. F_1 females from a cross of $y\ cv\ v\ f$ females with wild-type males were selected at random three days after hatching. Half of these females were exposed to a temperature of $-10^\circ C$ for 7 minutes. The other half were left untreated. The treated females were mated to w^a males, the untreated to their $y\ cv\ v\ f$ brothers. The treated series gave the following results: 0 = 633+849; 1 = 117+98; 2 = 216+271; 3 = 210+260; 1,2 = 5+9; 1,3 = 25+23; 2,3 = 23+37; 1,2,3 = 0+0; N = 2776; $R_1 = 8.18$; $R_2 = 20.20$; $R_3 = 20.82$. Results from the untreated series are as follows: 0 = 426+610; 1 = 89+77; 2 = 160+214; 3 = 157+207; 1,2 = 7+7; 1,3 = 21+18; 2,3 = 16+14; 1,2,3 = 1+0; N = 2024; $R_1 = 10.82$; $R_2 = 20.65$; $R_3 = 21.39$. From these data it appears that there is no appreciable effect on crossing over in females exposed to subzero temperatures. A comparison of the crossover values in earlier and later progeny of the treated females showed no differences.

Schober, Irmgard. Rate of X-ray-induced mutation in "high" stocks.

The stock "high 14" and "high 29" from P. T. Ives (Amherst) were used. The allele "high," when homozygous, increases the mutation rate about ten times. I found under standard

conditions a rate of $1.43\% \pm 0.32\%$ of lethals in the X chromosome (in comparison to 0.15% in normal stocks). After treatment of "high"-homozygous males with 4000 r, a rate of $9.50\% \pm 0.89\%$ of lethals was found. The rate of X-ray-induced lethals in the X chromosome in normal stocks at this dose is $9.41\% \pm 0.79\%$. In other words, the rate of X-ray-induced mutation is not increased by the "high" allele. This was to be expected according to the target theory.

Scossiroli, R. E. Selection experiments with X-ray irradiation.

Strains of D. melanogaster which had previously been selected for many generations for high and low number of sternopleural

bristles had reached a high plateau at about 27 bristles and a low plateau at about 15. From each of the two lines (high and low) four populations were established of about 400 flies each. Two of the four populations received treatment with 3000 r every two generations, while no treatment was given to the two control lines. Selection for high and low number of bristles was practiced with identical technique in the eight lines with selection pressure of .17. Whereas no progress was noticeable in the control lines over a period of 24 generations, remarkable progress was obtained in both irradiated high-selection lines: the present number of sternopleural bristles averages 36. Control and irradiated lines for low number of bristles remained approximately at the original level over the same period of time. The experiments are being carried further.

Shirai, M., and Moriwaki, D.
Variations of gene sequences
in various strains of D. ananassae.

found in wild populations of widely separated localities. Besides these, InIIL-o (small proximal, Formosa, Kikkawa), InIIR (median, Alabama, Kaufmann), and InIIIR (median, Brazil, Dobzhansky and Dreyfus) have been found, occurring respectively within relatively narrow limits. We have investigated the distributions of various inversions (gene sequences), using several wild strains, which, however, may not necessarily represent directly the respective geographical districts. Although we have not yet detected every homozygous type of the different gene sequences, the frequencies of their heterozygous types (so-called inversions) can be shown as follows:

In D. ananassae, several naturally occurring inversions have been found. InIIL(subterminal), InIIIL(terminal), and InIIIR(basal) are most common,

Table 1. Frequencies of inversions in various strains (per 100 larvae).

Strains	Inversions												
	None	IIL	IIR	IIIL	IIIR	IIL	IIL	IIL	IIR	IIIL	IIL	IIL	IIIL
						IIR	IIIL	IIIR	IIIL	IIIR	IIR	IIIL	IIIR
											IIIL	IIIR	IIIRA*
Hawaii	28	30	0	20	0	0	22	0	0	0	0	0	0
Hawaii-H	63	0	0	22	8	0	0	0	0	7	0	0	0
Texas	69	20	0	0	8	0	0	3	0	0	0	0	0
Louisiana	100	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	63	0	0	28	3	0	0	0	0	6	0	0	0
Costa Rica 101	11	4	4	15	0	20	4	0	6	0	36	0	0
Costa Rica 104	37	30	0	20	0	0	13	0	0	0	0	0	0
Panama 55	39	61	0	0	0	0	0	0	0	0	0	0	0
Panama 69	34	24	0	11	3	0	16	4	0	4	0	4	0
Porto Rico	17	17	0	21	3	0	10	5	0	13	0	14	0
Brazil	24	42	0	13	0	0	21	0	0	0	0	0	0
Africa	39	0	0	6	0	0	0	0	0	5	0	0	50

*A newly found type, designated InIIIR-A, differing from InIIIR(basal) and InIIIR(median, Brazil, temporarily named IIIR-B).

Summing up these data with those of Kikkawa (1938, 1939) and Dobzhansky and Dreyfus (1943), we have arranged the distribution of the inversion types in various regions of the world (Table 2).

Table 2. Geographical distribution of different inversion types

Regions	Inversion Types							Total	Source
	IIL	IIL-C	IIR	IIIL	IIIR	IIIR-A	IIIR-B		
Orient									
Formosa(10)	+	+	-	+	+	-	-	4	K
Okinawa(4)	+	-	-	+	+	-	-	3	K
China (2)	+	-	-	+	+	-	-	3	K
Saipan (1)	+	+	-	+	+	-	-	4	K
Pacific									
Hawaii(2)	+	-	-	+	+	-	-	3	
North America									
Texas(1)	+	-	-	-	+	-	-	2	
Louisiana(1)	-	-	-	-	-	-	-	0	
Alabama(1)	+	-	+	+	-	-	-	3	K
Central America									
Mexico(1)	-	-	-	+	+	-	-	2	
Costa Rica(2)	+	-	+	+	-	-	-	3	
Panama(2)	+	-	-	+	+	-	-	3	
Porto Rico(1)	+	-	-	+	+	-	-	3	
South America									
Brazil(1)	+	-	-	+	-	-	-	2	
Brazil(1)	+	-	-	+	+	-	+	4	D
Africa(1)	-	-	-	+	+	+	-	3	
Total	12/ 15	2/ 15	2/ 15	13/ 15	11/ 15	1/ 15	1/ 15		

() indicates number of strains.

K = from Kikkawa's data.

D = from Dobzhansky and Dreyfus's data.

The results are considered from the viewpoint of the "Monophyletic" origin of inversions.

Sigmund, R. X-ray irradiation of *Drosophila* eggs in air and in agar.

In the regions at the boundary of two media of different densities and chemical constitution (for instance, biological object-air) the dose is not proportional to the absorbed

X-ray energy, because the scattering electrons expend their energy partially in the neighboring medium. The loss of dose increases with decreasing size of the biological object and decreasing wave length. Irradiating *Drosophila* eggs at the age of 4.25 ± 0.25 hours and 0.25 ± 0.25 hours with X-rays (50 kv and 180 kv) in air and agar, respectively (while excluding anoxymbiosis), the author found a difference in the rate of mortality up to 40%. This has to be attributed to the difference in dose mentioned above.

Spiess, E. B., Yankopoulos, N., and Hutchinson, R. Effect of temperature and humidity on pupal survival in *D. persimilis*.

Pupae from single-pair strain crosses homozygous for either Whitney, Klamath, or Standard arrangements of the third chromosome of *D. persimilis* from Jacksonville, California, were tested for relative survival

under varying humidities in three temperature cabinets (15°, 20°, and 25° C). Humidities used were 100%, 80%, 50%, and 0%. Pupae to be tested were

isolated in vials and stored in desiccators containing water, sat. soln. KCl, $\text{Ca}(\text{NO}_3)_2 \cdot 4\text{H}_2\text{O}$, and CaCl_2 respectively. Tests were repeated and gave very good agreement between replications. Results were as follows: (1) At all three temperatures no significant differences were apparent between arrangements for the humidities above zero; that is, survival was between 90% and 100%, with sample sizes running in the order of 60 to 120. (2) In the zero-humidity desiccator all percentages of survival fell, most at 25° C. There were no significant differences between survival percentages of the gene arrangements, however, as can be seen on inspection of the data. At 25°: ST, 46% emerged; KL, 60% emerged; WT, 63% emerged. At 20°: ST, 93% emerged; KL, 82% emerged; WT, 89% emerged. At 15°: ST, 90% emerged; KL, 84% emerged; WT, 80% emerged. Evidently D. persimilis pupae are very resistant to desiccation, and it is only at unfavorably high temperatures that any influence of low relative humidity can have a marked effect on survival.

Strömmaes, Öistein. Selection for resistance to X-ray-induced dominant lethals.

From 31 stocks tested, the eight stocks were selected which gave the highest percentages of hatched eggs after X-ray treatment of the males. The foundation

stocks for the selection lines a and b were made up from four of the eight stocks. The remaining four stocks were employed to make up the foundation stocks for the selection lines c and d. The selection lines have been kept going by double first-cousin matings such that the selection lines a and b are related and the selection lines c and d are related. The males in each generation have been X-ray treated with 2300 r-units. All males were tested for dominant lethals by crossing them to virgin hybrid females from a cross: *cn bw*, *ell* ♀ x Canton-S ♂. The progeny from the males giving the highest hatchability in each generation were mated to their first cousins. The progeny were secured before X-ray treatment of the males. The selection has reached the twelfth generation. The table below pictures the gain in mean percentage hatchability.

Selection line	Lowest Parent Stock	Highest Parent Stock	Foundation Stock-- 0 Generation	12th Generation
a	54.90	59.50	60.38	67.86
b	54.90	59.50	56.12	72.16
c	49.77	61.03	59.12	72.74
d	49.77	61.03	59.69	72.00

Takada, H., Momma, E., and Makino, S. An unrecorded form of *Drosophila*, close to but different in several characters from D. busckii (subgenus *Dorsilopha*).

An unrecorded form or species close to D. busckii was found in the forest of Mt. Taisestu, Hokkaido, at an altitude of 1200 meters. The external characters of the imago, which are different in several important points, are described below.

(♀) Arista with about 8 branches. Antennae brownish yellow; third joint brown. Front over one-half width of head, wider below; brown. Ocellar dark red. Middle orbital one-third size of anterior and one-half size of posterior. Only one prominent oral bristle. Proboscis yellow; palpi yellow, a few prominent bristles on each palpus. Carina high; face brownish. Cheeks whitish; their greatest width about one-third height of eye. Eyes with rather thick pile.

Acrostichal hair in 6 rows, no prescutellars. Mesonotum reddish yellow,

with four longitudinal brownish stripes; two in the dorsocentral lines. Two other stripes run from just above the humerus to just above the wing. Anterior scutellars divergent. Sterno index 0.5. Legs yellow. Apical bristles on first and second tibiae, preapicals evident on third.

Abdomen yellow, each of first to fifth segments with apical black band, interrupted in mid-dorsal line. There is generally black of last two segments. Wings clear; veins yellow. Costal index about 2.4; 4th vein index about 1.9; 4c index about 1.0; 5x vein index about 1.3. Apex of first costal section with two bristles, third costal section with heavy bristles on its basal one-third. Body length about 2.7 mm; wing, 2.5 mm.

Characteristics of eggs, pupae, chromosomes: unknown. Distribution: two females and three males collected in Mt. Taisetsu, Hokkaido, Japan. Relationship: the new species has preapical bristles evident on third tibiae, as in D. busckii.

Based on many particular characteristics different from D. busckii, this is regarded as an unrecorded species, probably belonging to the subgenus Dorsilopha, Sturtevant.

Takada, H., and Makino, S.
Two different types of D. auraria and their habitats.

There were found two remarkable types (A and B) of D. auraria, differing in several morphological and ecological characteristics. They also differ in their habitats. The results of collections attempted at various

altitudes in the suburbs of Otaru City, Hokkaido, are summarized in the table. The flies were collected daily by means of two traps for each altitude, at 5:00 to 6:00 p.m. every day during the period from July 20 to August 31, 1952, at a temperature of 19°-21° C.

Altitude (m)	30	60	90	120	150	180	210	240	270	300	Total coll.
Auraria-A	♀ 72	48	30	2	2	4	0	2	2	0	162
	♂ 108	64	44	2	10	2	4	8	10	4	256
Auraria-B	♀ 0	0	4	24	34	42	28	16	20	4	172
	♂ 0	6	22	20	18	30	40	34	36	6	212
Other species	64	32	18	14	16	30	50	8	16	8	256
Total number collected	244	150	118	62	80	108	122	68	84	22	1058

Tantawy, A. O. Changes in genetic variability with different intensities of inbreeding.

An experiment was designed to study the changes in genetic variability of body size (i.e., wing and thorax length) in D. melanogaster. A number of parallel lines of various systems of matings were maintained

(i.e., brother-sister, half-brother by sister, double first cousins, and half-double first cousins). In each line, at the same or nearly the same coefficient of inbreeding, progeny tests were carried out to estimate the heritability of body size, and the results are shown in Table 1.

Table 1. Heritability of body size in the initial population, and the weighted means, based on the regression method

Test	Type of Mating	Heritability (%)	
		Wing Length	Thorax Length
1st test	Assortative	32.00± 6.00	35.00± 7.00
2nd test	Random	23.00±12.00	-2.00±11.00
3rd test	Assortative	21.00± 4.00	17.00± 5.00
	Weighted Means	24.30± 3.20	20.30± 3.90

The heritability estimate for wing length, based on sib correlation method, of the initial population mated at random was found to be 0.40, which is higher than the value obtained using the regression method.

Table 2. Average heritability of body size at the levels of 25% and 50%, and at 67% and 80% of inbreeding, and the expected decline from the starting point

Coefficient of Inbreeding	System of mating	Average Heritability Estimates (%)					
		Wing Length			Thorax Length		
		Actual results	Expected decline from		Actual results	Expected decline from	
			24.0±3.0	32.0±6.0		20.0±4.0	35.0±7.0
25 and 50	Brother-sister	28.4±4.1	16.3	22.5	24.4±3.9	13.4	25.0
	Half-brother and sister	29.0±4.2	16.3	22.5	21.1±4.7	13.4	25.0
	Double first cousins*	22.2±3.8	15.7	21.7	14.8±4.6	12.9	24.1
	Half-double first cousins	25.5±3.8	16.3	22.5	17.2±5.3	13.4	25.0
67 and 80	Brother-sister	11.0±5.2	7.9	11.4	10.1±5.7	6.4	12.8
	Half-brother and sister	21.8±4.0	7.4	10.7	12.7±4.4	6.0	12.1
	Double first cousins	16.2±4.2	7.7	11.1	11.7±5.1	6.2	12.5

*Average estimates at the levels of 31% and 50% inbreeding.

The heritability estimates of the initial population are liable to sampling error, and there is reason to believe that heritability of wing and thorax length is higher than the weighed means, because one of the tests gave atypical estimates, possibly owing to some environmental effect. The heritability of body size in lines inbred at different rates but to the same inbreeding coefficient was estimated. (Table 2) in order to test whether rate of inbreeding influenced the amount of loss of heterozygosity for a quantitative character. It was not possible to decide how far the rate of decline in heritability in the rapidly inbred lines agreed with the theoretical rate calculated by Wright's formula, since the heritability of the original stock could not be estimated with sufficient accuracy; but the expected and actual heritabilities appeared to be in agreement, at least for the higher levels of inbreeding in the case of brother-sister matings.

These results do not show a uniform tendency for loss of heterozygosity to be proportional to rate of inbreeding, but they do suggest that brother-sister matings were more effective than slower rates of inbreeding in eliminating heterozygosity. This conclusion is supported by the estimates obtained from sib correlations at nearly 79% of inbreeding. At this level, the estimates for wing length by the two methods were 9.2, 23.1, and 15.6% using the regression method, and 22.6, 24.7, and 30.4% using sib correlations in the case of brother-sister, half-brother and sister, and double first cousins mating, respectively. The two methods of estimates agree quite well in suggesting that there is a greater reduction in heritability of wing length at the higher levels of inbreeding under brother-sister matings than under the less intensive systems. The difference between the estimates based on the two methods may be due to sampling errors, but they are all in the same direction, and this suggests that there is still some non-additive genetic variability remaining after 79% of inbreeding.

Our results, though not decisive, probably mean that intensive inbreeding is more effective than slower rates of inbreeding in eliminating heterozygosity, and therefore support the hypothesis that there is some natural selection of heterozygosity for a character such as body size. Such selection probably acts on viability. Results secured from studying other characters (i.e., the genetic correlation between wing and thorax length, the effect of inbreeding on body size and its phenotypic variability, percentage emergence, crosses between the inbred lines within each system of mating at 79% of inbreeding) all agree in showing that heterozygosity may still be present in the inbred lines at higher coefficients of inbreeding.

Tattersfield, F., and
Kerridge, J. R. The develop-
ment of DDT resistance in
Drosophila and the effect of
CO₂ susceptibility upon it.

A strain of *D. melanogaster* susceptible to CO₂ has emerged during work on selection for DDT resistance in a local wild stock found in the vicinity of the Rothamsted Experimental Station. It has been discovered that L'Héritier's ebony strain was cultured at this station during the years 1942-1944. Although the hypothesis that our strain arose by escapes of ebony crossing with other strains is the simplest available, this entails the possibility of surviving in the wild for several winters, one of which was exceptionally severe.

The CO₂ sensitivity has been examined with some care to ascertain whether there is any relation between its incidence and DDT sensitivity or selection for resistance to DDT. The two types of selection are in marked contrast. CO₂ resistance develops rapidly if the progeny of survivors of a treatment are reared and re-treated. Three or four treatments give a high CO₂ resistance; but it requires the repeated treatment of many generations of insects to develop resistance to the insecticide, and variations in susceptibility of a large order in both the original and treated stocks are observable during the process.

It was found: (1) That insects selected for CO₂ resistance gave the same probit-log. concentration regression line as the unselected original stock. (2) That if nitrogen was substituted for CO₂, as an anesthetic, and the susceptibility to DDT determined at a temperature of 25° C, at which the CO₂ sensitivity is in abeyance, the probit-log. concentration regression lines for both N and CO₂ were identical. If the temperature was reduced to a point where over 50% of the insects were killed by CO₂ (15° C), the lines for the two gases were identical, if allowance was made for the deaths in the controls sprayed only with the medium; and four points of a strain selected for

CO₂ resistance fell on this line. It is concluded that CO₂ susceptibility does not alter the distribution of resistance to DDT in the population taken, but only limits its size from which selection can be made.

DDT resistance in *Drosophila* on successive sprayings with the insecticide develops slowly. Fluctuations in resistance of the stock used, whether it is sprayed repeatedly or not, are considerable in magnitude, and stocks vary in their potentiality for selection. It would appear that the higher the initial mortality, within limits, the more rapidly selection takes place; but, provided there is an initial selection, the likelihood of a resistant stock's being built up eventually is considerable, whether the concentration of DDT is increased or kept at the same level. There does not appear to be any adaptation to higher concentrations; the building up of resistance seems to be a matter of selection only.

This work has been prepared for publication.

Townsend, J. Ives, Jr. Easily detectable morphological differences between *D. tropicalis* females and those of its sibling species.

the females of *D. tropicalis*, on the one hand, and those of *D. willistoni*, *D. paulistorum*, and *D. equinoxialis*, on the other hand. The ventral receptacles of the latter three species exhibit about 12 folds in their coiling, while those of *D. tropicalis* possess only about 7 folds. The spermathecae of *D. willistoni*, *D. paulistorum*, and *D. equinoxialis* are very lightly chitinized and straw colored; those of *D. tropicalis* are much more heavily chitinized and medium brown (in both respects, intermediate between *D. melanogaster* and the other three sibling species). In contrast to the ventral receptacle difference, this spermathecal difference is sometimes usable for classifying undissected females, since the color of the spermatheca may often be visible through the abdominal wall.

Warren, Katherine Brehme, Klein, Richard L., Madden, Carol V., and Reiter, Gloria R. The time of action of lethals of different origins in *D. melanogaster*.

were collected over 2- to 4-hour periods. Eggs were placed, 20 to 40 to a dish, in 4-inch Petri dishes on a medium of 10% V-8 juice, 2% agar, 1.5% Tegosept, and 86.5% water with live yeast, and incubated at 25° C. Dead eggs, larvae, and pupae were removed at short intervals and recorded. Reiter studied 18 spontaneous lethals obtained from an experimental population 50 generations old; 5 were found to be effective in the egg, 13 in the first-instar larva. Madden studied 16 X-ray-induced lethals of independent origin (screened for translocations and the latter discarded); 4 were effective in the egg, 2 in the first instar, 1 in the second instar, 2 in the third instar, 1 in the pupa. In addition, 2 were found to be lethal in any of the larval instars, 1 in the second or third instar, 1 in either the third instar or pupa, 1 at any of the developmental stages, and 1 at the time of the first larval molt. Klein studied 35 lethals induced in an experimental population exposed to continuous gamma radiation from a radium bomb; 10 were lethal in the egg, 22 in the first instar, 1 in the third instar, 1 in the pupa. Control counts of 192 progeny of Cy L/nonlethal-1 ♀♀ by Cy L/nonlethal-2 ♂♂ were made by Madden, who found the Cy L chromosome to be lethal chiefly in

Only minor and overlapping morphological differences between the sibling species of the willistoni group have been reported. Those differences are rather difficult to detect. Easily detectable differences do exist, however, between

A comparative study has been made of the time of action of second-chromosome lethals of different origins (obtained from the laboratory of B. Wallace and J. C. King), balanced by Cy L. In each series of experiments, at least 200 eggs

the first instar, with some effect on the egg period. These results have been interpreted as an indication of lack of qualitative differences among the effects of lethals of the different origins.

Weltman, A. S. The effect of the Y heterochromatin on the rate of sex-linked mutation induced by X-rays.

It has been reported by others that the presence of an extra Y chromosome in D. melanogaster decreases the frequency of visible and sex-linked lethal mutation

induced by X-rays. In the following experiment, males with the heterochromatic equivalent of an extra Y were obtained through the use of the X-Y chromosome, in which the Y^L is attached to the centromere region of the X, and the Y^S to the distal end. Normal XY and X-Y/Y males were obtained by crossing Canton females to yellow X-Y/Y males, and subsequently mating the heterozygous females to Canton males. Both classes of males were treated with 3600 r. The X-rayed XY males were crossed to y M-5 females, and the X-Y/Y males were crossed to sc⁷ AM/y M-5 females. In a parallel run, the above types of females were first mated to the corresponding males and then X-rayed. The results were as follows. F₁ of females fertilized by X-rayed Canton males (XY) gave a lethal percentage of 5.50% (34/618). The F₁ of females fertilized by Canton males and then X-rayed had a sex-linked-lethal mutation rate of 8.18% (32/391). Two classes of females were tested from the X-Y/Y cross (the y M-5/y X-Y, yellow Bar females, and the sc⁷ AM/y X-Y, wild-type females). When the X-Y/Y males were X-rayed, the wild females gave a lethal mutation rate of 8.10% (70/864), and the yellow Bar females 8.02% (15/187). Females fertilized and subsequently X-rayed showed for the wild-type females a rate of 9.79% (57/582) and for the yellow Bar females a rate of 8.05% (31/385). These results indicate that the utilization of the X-Y/Y males to produce sperm carrying the Y heterochromatin together with the X chromosome failed to reveal any influence of the Y heterochromatin on the rate of sex-linked mutation.

Yanders, A. F. The effect of age of male on X-ray-induced dominant lethals in D. robusta.

Male D. robusta first reach sexual maturity 8-10 days after eclosion. Ten-day (Young) males and 17-day (Old) males were X-rayed with 0 (control), 2500, and 5000 r units,

and immediately mated to 17-day females, with which they remained until completion of the experiment. Each day for 10 days, 100 eggs laid in the preceding 24-hour period were collected from each of the six groups, and placed in vials in units of 25. Records were kept of (a) egg hatch, (b) formation of pupae, and (c) adult emergence, for each vial. Mean percentages, based on 1000 eggs introduced per group, are as follows:

	0 r			2500 r			5000 r		
	a	b	c	a	b	c	a	b	c
Young	74.6	38.7	38.2	44.8	21.6	20.6	16.4	7.8	7.6
Old	85.4	41.9	39.9	24.6	14.6	12.8	3.6	1.9	1.8

Analyses of variance of the data from each developmental stage show the age of the male parent at irradiation to be highly significant.

Zimmering, S., and Barbour, E. L. Interchromosomal effect in D. melanogaster.

A test was made to determine the effect of an autosomal translocation on crossing over in the X chromosome. Males heterozygous for T(2;3)bw^{V4} were crossed to y cv v f females.

The F₁ females were heterozygous for y cv v f, one-half of these carrying the translocated chromosomes, the other half their normal homologues; all females were mated to their y cv v f brothers. The translocation series gave the

following results: 0 = 2002 + 2621; 1 = 332 + 453; 2 = 732 + 688; 3 = 703 + 808; 1,2 = 30 + 23; 1,3 = 90 + 114; 2,3 = 76 + 117; 1,2,3 = 2 + 5; N = 8796; $R_1 = 11.9$; $R_2 = 18.9$; $R_3 = 21.3$. Results from the control series were: 0 = 2124 + 2550; 1 = 293 + 346; 2 = 757 + 707; 3 = 699 + 772; 1,2 = 18 + 14; 1,3 = 41 + 53; 2,3 = 57 + 79; 1,2,3 = 2 + 1; N = 8550; $R_1 = 8.9$; $R_2 = 19.1$; $R_3 = 20.0$. There is no striking difference in the frequencies of crossing over in the two sets, but it should be noted that the number of doubles is greater--and significantly greater--from females heterozygous for the translocation.

Zimmermann, Wolfgang.

Sensitive periods in production of the modification "abnormal abdomen" by heat treatment of eggs from normal and several mutant "abnormal abdomen" stocks.

By treating eggs of successive one-hour layings with a four-hour temperature shock of 35°-36°, the sensitive periods found by Maas (1948) were verified. By treatment of fertilized flies, ready to lay, another sensitive period was found, which has to be related to developmental processes in the oöcytes. Flies hatched

from eggs treated during this early sensitive period show the irregularities mainly in the posterior part of the abdomen. After treatment during the first sensitive period (2-3 hours) the irregularities are mainly in the anterior part; whereas after treatment in the second sensitive period (9-10 hours) there is no significant difference in the position of the irregularities from the controls (Table 1). In the abnormal-abdomen stock a(1)48; a(2)48; a(3)48, after treatment of 0-1- and 1-2-hour eggs the irregularities lie mainly in the posterior part of the abdomen; they are shifted instantly to the anterior part after treatment of 2-3-hour eggs. When the treatment is given to eggs of the succeeding stages--up to the beginning of the second sensitive period--the resulting irregularities shift farther and farther back. Stock a(2)48 shows a similar reaction.

Table 1

Stock	Sens.Period of Oöcyte		First Sens.Period (2-3 hours)		Second Sens.Period (9-10 hours)		Control	
	% abn.	Mean posi- tion*	% abn.	Mean posi- tion	% abn.	Mean posi- tion	% abn.	Mean posi- tion
Berlin normal	29.6	2.92	22.0	2.03	25.1	2.55	0.3	2.76
a(1)50 a(1)50; Cy/Pm; Sb/H	12.0	3.18	29.0	2.30	58.5	2.45	1.2	2.36
a(2)48 a(2)48; Sb/H	20.5	3.19	38.1	2.34	54.3	2.31	7.0	2.51
a(1)48; a(2)48; a(3)48 a(1)48; a(2)48; a(3)48	65.8	3.04	67.9	2.40	84.5	2.59	36.6	2.69

*Position of the irregularities refers to the visible segmental borders; and so "2" marks the border between the third and fourth segments.

TECHNICAL NOTES

Baker, William K.

Permanent slides of salivary and ganglion chromosomes.

The following technique was developed by Dr. Alan D. Conger for use with Tradescantia chromosomes. During the past year the writer has used this method extensively

with *Drosophila* and finds that it gives excellent permanent slides, which can be made easily and rapidly. Temporary smears (ringed with a mixture of hot paraffin and vaseline) are placed on a block of dry ice and allowed to remain until thoroughly frozen. The cover slip is then flicked off by inserting the edge of a razor blade underneath one corner. Practically without exception, all the tissue remains on the slide. The remaining paraffin-vaseline seal is quickly scraped off from around the smear and the slide is placed in 95% ethanol before the tissue has had a chance to melt. After 2 or 3 minutes in 95%, it is transferred to absolute alcohol for 1 minute. The slide is then removed dripping wet and a drop of euparal is placed along the side, but not on top, of the smear. A clean cover slip, wet with absolute alcohol, is dragged over the euparal drop to the smear, where it is gently lowered. Three main advantages of this method are: the ease and speed of removing the cover slip without disturbing the tissue; the preservation of the chromosomes (brain and salivary) without distortion; the fact that mechanical stage readings on a temporary mount remain the same for the permanent preparation, since the tissue remains on the slide.

Di Paolo, Joseph A.

Water table for controlling temperature.

A water table for stocks and experiments, such as was suggested by Mickey in DIS-23, can be made for approximately one-tenth the price charged by a tinsmith. A piece of

galvanized tin 8' x 3', 26 gauge, was bought for \$4. On the two narrow sides, 6-inch slits were made perpendicular to the edge and 6 inches from the long side. Using a hammer, pliers, and a piece of wood, the walls were formed. The pieces extending beyond the walls were bent and then screwed to the walls. All the corners were filled with solder. At one end of the table a hole was made in the bottom, using a chisel. A sink drain and gasket were fitted onto the hole, and on the under side a reducing nipple for the pipe line leading to the sink with the waste water. The table was then painted and set on a regular table. Total cost was under \$10.

Fabergé, A. C., and Cave, R. C.

A pump and metering device for filling vials.

Vials can be filled quickly and accurately by means of a pump which automatically delivers the exact amount of food for each vial. Such a pump has been constructed at

the University of Missouri, and has been in constant use for the last nine months, during which time an average of about 4000 vials were filled per week. Only three parts come in contact with the food: a piston, a cylinder, and a stationary shaft with ports about which the cylinder oscillates. These three parts are made of stainless steel, and can be quickly disassembled for cleaning by removing just one screw. The piston and cylinder are lubricated only by the food itself; to ensure this, a definite clearance of 0.002 inches is left between them. Food, which need not be particularly hot, is stored in a funnel-shaped tank of about 7-liter capacity (smaller amounts may be used) and placed 15 inches above the pump to ensure a gravity feed. Food is delivered, through a nozzle at the end of a length of 3/16-bore pressure hose, in squirts of 9 ml each. Speed can be adjusted to suit the operator, who only has to move the nozzle to successive vials in rhythm with the pump. In practice, a rate of 100 vials a minute is easily kept up, which is considerably faster than can be achieved with the usual spring clamp. Vials are filled with an exact amount of food, and no food is smeared on the walls.

Lumps such as ordinarily occur in cornmeal-molasses food will not interfere with the pump. As a precaution, however, a 12-mesh screen is installed at the top of the food tank. The cost of such a device is about \$100; \$40 for making the pump and the materials, and \$60 for a suitably geared 1/12-h.p. motor. Blueprints will be sent to anyone interested.

Goldstein, L. A food formula for large-scale individual crosses.

When a large number of vials is needed for individual crosses (for instance, for the detection of sex-linked lethals) it is useful to have a readily made

food, easy to pour. We are using at Gif a slightly modified Pearl's S 101 food formula for this purpose, with good results. The yield is about 50 flies per vial containing 10 ml of food, which is sufficient in most cases. As this food is quickly exhausted, it is advisable to remove parents early enough and to examine flies shortly after emergence.

In order to simplify the handling of necessary salts, concentrations have been calculated in such a way that equal amounts of the six solutions listed below and of sugar are put together with as much water as the total liquid amount. In this way, no mistake can be made. Dry brewers' yeast must be used. It sediments during cooling-off, but this is not important since larvae in working their way through the food find it and mix it everywhere. The food is as easy to pour as water, as long as it remains warm. It can be heated many times, but not sterilized. If needed, Moldex can be added in the usual amount. After cooling, the food should be seeded with live yeast in the same way as cornmeal-molasses food.

Salt solutions (for 1000 ml distilled water)

(A)	Potassium and sodium tartrate....	100 g
(B)	Neutral sulfate of ammonium.....	24 g
(C)	Magnesium sulfate.....	6 g
(D)	Calcium chloride.....	3 g
(E)	Tartaric acid.....	60 g
(F)	Potassium phosphate.....	12 g

Quantities to be used for 1000 ml food

75 ml of each solution
75 g sugar
450 ml water
30 g agar
20 g dry brewers' yeast

The agar will gel only if it is boiled with solutions A and D, plus the total amount of water. When the agar is dissolved, add sugar dissolved in B and C, and, finally, E and F to the warm mixture.

Herskowitz, Irwin H. A simple lens arrangement for examining flies in vials.

To substitute for or alternate with the usual dissecting microscope, a round, liquid-filled, 5-liter flask has been used as a lens to determine the presence

of easily distinguished classes of flies within vials. Vials are passed behind the flask, which has cellophane taped to it to prevent scratching, and are viewed from the front, where the light source is placed. The height of the apparatus is adjusted to avoid bending the head; the focus is deep, the field of vision is wide, and the flies are attracted by the light. This arrangement is particularly useful during large-scale experiments for the detection of recessive sex-linked lethals.

Lanke, W., and Telfer, J. D.
A rapid method for collecting
Drosophila from a series of
bottles.

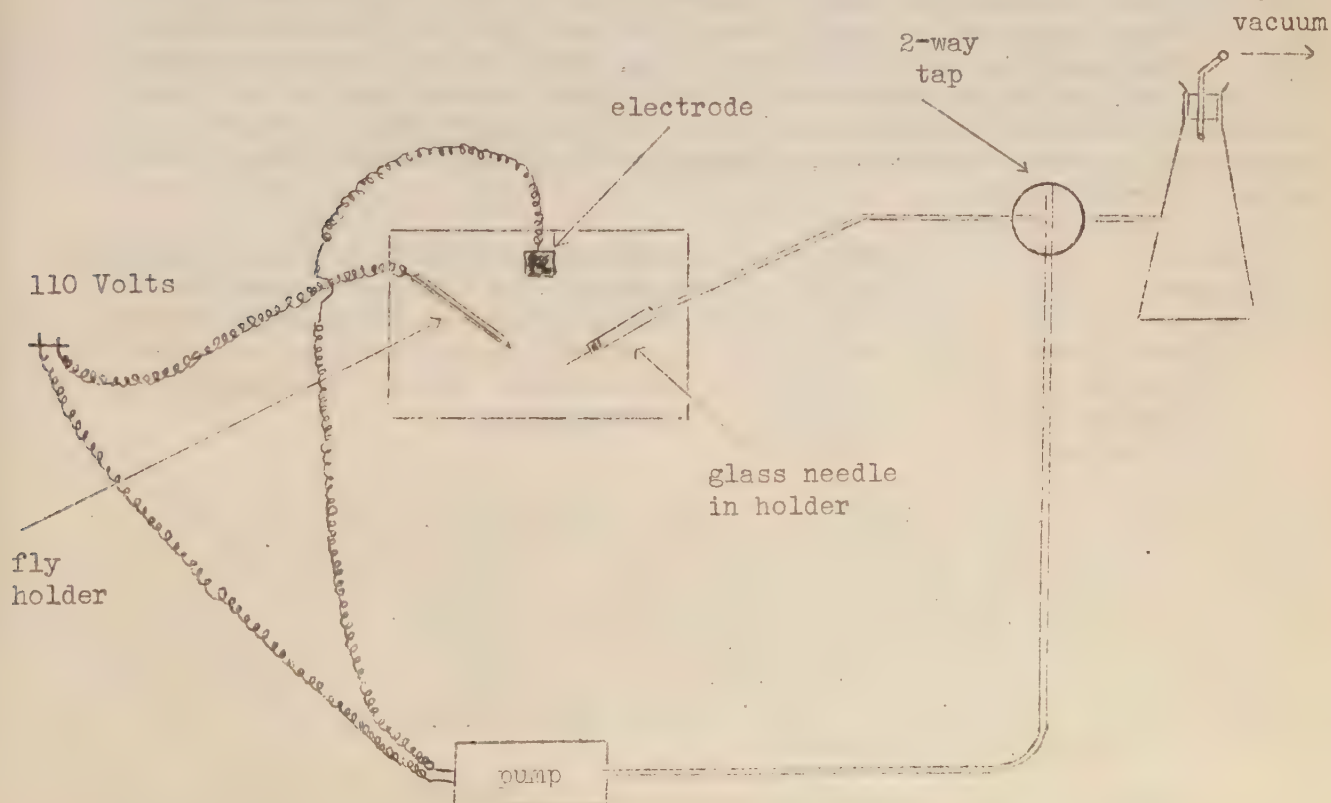
We have found in collecting virgin female
Drosophila that it is often necessary to
collect flies from a series of bottles to
obtain the number desired for etherization.

To facilitate such a technique, a cone is
inserted into a bottle similar to the type used for the cultures, and this
apparatus makes a suitable fly trap. The cone, which is made of heavy card-
board, is of a diameter that permits it to fit snugly into the top of the
bottle and then tapers to a diameter of 1/4-inch at the bottom. The cone
extends into the bottle so as to leave one inch clearance between the bottom
of the bottle and the opening in the apex of the cone. When a sufficient
number of flies have been transferred to the fly-trap bottle, the cone is
removed and the flies are transferred to the etherizer. We find that it is
possible to collect 500 flies before making the transfer without the loss of
a single *Drosophila* from the apparatus. This is possible because the flies
as they are collected drop through the cone and crawl up the side of the
bottle rather than attempt escape through the 1/4-inch aperture in the apex
of the cone.

L'Héritier, Ph. A convenient
device for injecting large
numbers of flies.

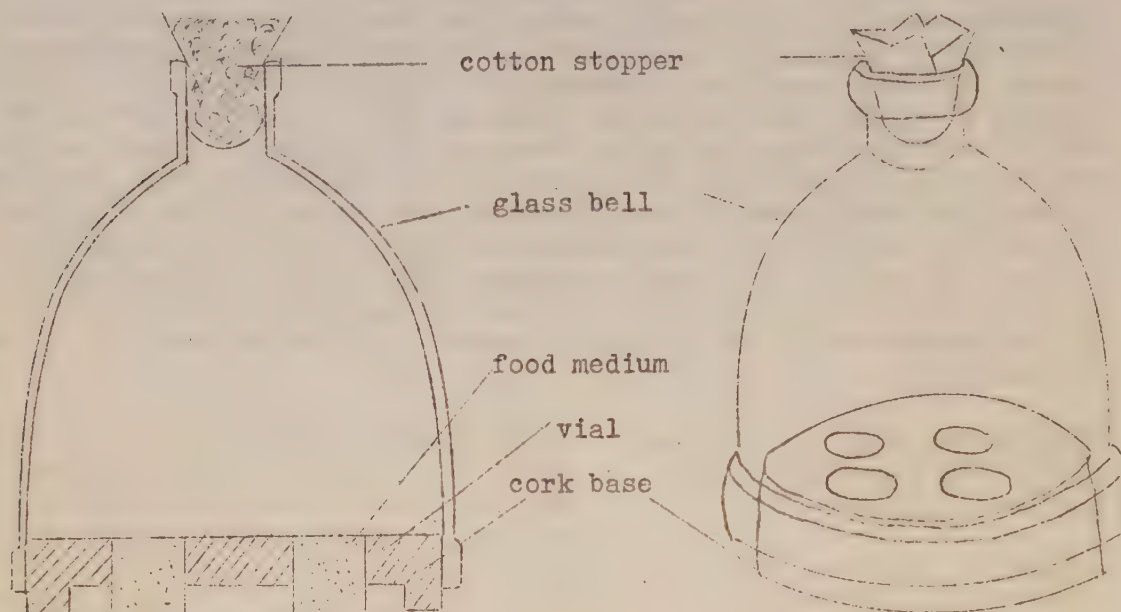
Until recently we were using, to inject
adult flies or larvae, an apparatus derived
from Chamber's micro-manipulator. A
syringe, operated with the left hand and

connected through a copper pipe with a glass needle, was used to drive the
liquid into the body cavity. We have now replaced the syringe with an elec-
tric pump of the kind used to drive air into aquaria. After the glass needle
has been introduced into the fly, one has only to touch an electrode on the
stage with the fly holder, thus switching on the electric current and start-
ing the pump. To fill the needle a vacuum-depression bottle is used, to
which the needle is connected through a two-way tap.



Ohba, S. A new culturing apparatus for *Drosophila* populations.

A new type of culturing apparatus for *Drosophila* populations has been successfully used in our laboratory for several months. It has been called a "population bell" and has the structure shown in the figures below. After ordinary



heat sterilization, the surface of the cork base is varnished with a 10% Moldex solution in 70% alcohol. At the beginning four vials containing food are inserted into the holes of the cork base, and each in order is replaced with a new one, one vial a week, so that each vial remains in the bell for four weeks in the established state. Because the food surface is rather small, the medium described below is more suitable than an ordinary cornmeal-molasses-agar medium, with which the flies are undernourished. The medium is a non-yeasted one, a modification of Carpenter's semisynthetic medium (DIS-24, p. 96).

Water	250 cc	Add agar to water, heat until dissolved. Add sugar and yeast and boil for several minutes, stirring. Stop boiling, add Moldex and tartaric acid. The medium contains no living yeast.
Agar	5 g	
Sugar	25 g	
Bakers' yeast	25 or 50 g	
10% Moldex solution in 70% alcohol	2.5 cc	
Tartaric acid	1 g	

Counting of flies is done as follows. Exchange the food vials for cork stoppers. Remove the cotton stopper from the upper opening, turn the bell upside down, and drop flies into a milk bottle. By repeating this procedure several times, all the flies can be removed from the bell. After counting, flies are stored in a milk bottle until they have completely awakened from etherization and then returned to the bell. The size of the population is usually between two and four hundred with *D. melanogaster*, although it is greatly influenced by yeast density.

The merits of the "population bell" may be summarized as follows: (1) the unit is compact and easily handled, (2) counting of flies is easy and rapid, (3) conditions of nourishment can be controlled by changing the yeast density of the food medium.

Plaine, H. L. Non-growing brewers' yeast as the sole medium for rearing *Drosophila* larvae.

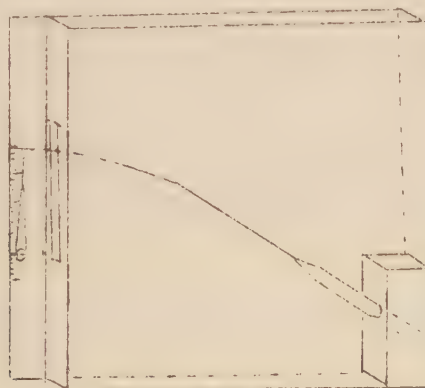
Eggs which have been collected by standard techniques on filter paper, and freed from the collecting medium if necessary, are placed on moist filter paper in 4-inch Petri plates. One should be careful to select

well-matched culture plates and covers, as otherwise the larvae may crawl out between the cover and the rim of the plate. Once the eggs are placed on the filter paper in the absence of food, an accurate egg count may be made under the binocular microscope. After an appropriate interval, relative to the prevailing temperature, a second count may be made to determine the percentage of eggs which have hatched. Dried brewers' yeast is then added to the plates and moistened with water. Extra yeast should be added daily, or as it is consumed by the larvae, so that there is always more food present than the larvae require. The larvae obtain all their nutrients from this yeast, which therefore, even when not growing, must contain all the nutrients necessary for their normal growth and development, contrary to implications of Mittler (see DIS-25). At 25° C the larvae molt and pupate at the times given by Bodenstein in *Biology of Drosophila*, so that there is no delay of development or retardation of growth on this medium. The larvae remain burrowing in the yeast until just prior to pupation, when they leave the food and crawl up the sides and onto the covers of the Petri plates, from which they may easily be picked for classification or further studies. The late-third-instar larvae or young pupae are then transferred to vials containing only paper toweling wetted with a standard laboratory solution of Tegosept M. Under these conditions, untreated flies begin to eclose on the ninth day after the egg collection. An accurate account may then be made of the number of larvae or pupae which have eclosed.

Sang, J. H. A simple microbalance.

During the course of a project it was necessary to check the weights of individual flies. The only available torsion balance

proved inadequate, and so an easily constructed, simple microbalance was developed for this limited purpose. It was accurate to 1/50 mg, within the 2.5 mg of its total range, and gave repeatable results during the month or so when it was in use. Elaboration of this simple device could give greater accuracy, if required. The essential moving part was a drawn-out glass rod, fixed at one end in a wooden block and carrying a scale pan made from cigarette foil attached by a hair at the other end. A cellulose glue was used as adhesive. The whole was protected from drafts by mounting it in a 19-cm filter-paper box with the fine end of the rod carrying the scale pan projecting through a slit. A mirrored scale was made and calibrated, in the usual



way, using fine wire weights. A standard calibration check weight was also made from fine wire, and this was weighed before and after each series of weighings. This check actually proved to be unnecessary. It was found essential to do all weighings in the equivalent of a fume chamber to minimize the effect of drafts. Flies could be weighed at a rate of better than one a minute.

Slizynski, B. M. Salivary-gland preparations without any loss of material.

Larvae are dissected in a large drop of fixing-staining liquid (aceto-carmin, aceto-orcin or aceto-lacmoid, etc.).

After 10-15 minutes the glands are transferred onto albuminized slides in a small drop of fixing-staining liquid, and covered by a square of cellophane, on top of which a piece of filter paper is placed. Squashing is carried out by rolling a vial over the filter paper, applying a little pressure with the hand. The squashed preparation is immersed in tap water, in which in a minute the cellophane square wrinkles and detaches itself from the preparation. The slides may now be treated in any way--either making them permanent by passing through a series of alcohols, etc., or staining them with Feulgen reagent or basic fuchsin, etc. All material always remains on the albuminized slides, and nothing is lost by adhering to the cellophane. The method can be applied to any tissue and any animal or plant where squashing is generally used.

Wieczorek, H. A new etherizing bottle.

A modification of Muller's etherizer (DIS-6, p. 55) has proved most practical in our laboratory. The etherizer consists of a double funnel that fits into a glass bottle by means of a cork,

which surrounds the upper funnel. The opening between the upper and lower funnels is 3/4 inch. The bottom of the lower funnel is closed by a glass filter plate. The funnel is easily formed by a glass blower from a "Glas-Fritte," Schott Jena, type LG3 (best width of pores for uniform etherizing). Some of the advantages are: solid connection of funnel and filter, easy chemical cleaning of the filter plate, and the fact that it is very difficult for flies to escape even under poor etherization.

Yanders, A. F. Preparation of salivary-chromosome smears for phase microscopy.

Temporary or permanent smears of salivary-gland chromosomes to be observed with a phase microscope have been successfully prepared by means of the

following technique. Larvae are dissected in 50% acetic acid, and the glands smeared immediately in a fresh drop of the same solution. Temporary slides have been kept under refrigeration for several days without visible deterioration. Slides to be made permanent are treated by the alcohol vapor method and mounted in Euparal.

Alice Louise Bull, Yale University, has been awarded a fellowship by the American Association of University Women, and is spending the year 1952-53 working at Hadorn's laboratory in Zurich. She is continuing her analysis of the action of second-chromosome deficiencies.

A. B. Burdick in the Department of Biological Sciences, Purdue University, is now carrying the class stocks formerly listed by S. A. Rifenburgh in the same department. Dr. Rifenburgh will devote full time to work in anatomy; and Genetics teaching and research will be in the charge of Dr. Burdick. Studies of polygenic inheritance and heterosis in *Drosophila* are being developed.

K. W. Cooper is leaving Princeton in January, 1953, to become chairman of the Department of Biology at the University of Rochester. It is planned that he will be joined there by J. Krivshenko in July, 1953.

Frank C. Erk, formerly of the Johns Hopkins University group, is now Associate Professor of Biology at Washington College, Chestertown, Maryland.

Arturo A. Fernández Gianotti is professor of Cytology and Genetics at the Facultad de Ciencias Exactas y Naturales, University of Buenos Aires, where he will continue his work on genetic analysis of wild populations of *D. melanogaster*.

Joseph G. Gall, Yale University, has been appointed Instructor in Zoology at the University of Minnesota, where he will continue his work on chromosome structure, and teach Cytology.

Charles H. Haddox, Jr. has left the University of Texas to join the research staff in the Department of Surgery at Louisiana State University School of Medicine in New Orleans. He is continuing his work with *Neurospora* and is also utilizing *Drosophila* in his studies on mutation and gene action.

D. L. Lindsley is at Princeton University for the academic year 1952-53, as a National Research Council fellow.

Per Oftedal is at the present time studying at the Institute of Animal Genetics, Edinburgh. Beginning in March, 1953, he will be employed at Det Norske Radiumhospital, Oslo, Norway, working on the cytology and histology of tumors.

E. B. Spiess has left Harvard University to take up a new post as Assistant Professor at the University of Pittsburgh (see Directory), where he hopes to develop interest in problems of speciation and cytogenetics of *Drosophila*.

Arvelighetsinstituttet, Universitetet, Oslo, Norway. Bjørn Fåyn is the new director of the institute. Otto Lous Mohr has retired as director and as professor of anatomy, but he will continue to have his office at the institute.

Biometry Department, University College London. Dr. Thea Koske, from Professor Mainx's laboratory in Vienna, has arrived with a view to locating the inversions, and perhaps some of the genes, available in our London *D. subobscura*, on the salivary maps of this species prepared in Vienna. Mr. J. Maynard Smith has mapped eleven loci on its fifth chromosome, and obtained genetical evidence suggesting at least four chromosome orders. Mr. M. J.

Hollingsworth is engaged on the morphology of the external and internal genitalia in intersexes of this species, due to the autosomal gene ix (DIS-25).

The center of Genetics at Gif-sur-Yvette (S et O), France, is now at work in large and convenient laboratories built and equipped by the Centre National de la Recherche Scientifique. It includes two departments, Formal Genetics, under the direction of Dr. L'Héritier, and Evolutionary Genetics under the direction of Dr. Teissier. Research work is being done mostly on CO₂ sensitivity in L'Héritier's laboratory. Population genetics, quantitative inheritance, and biometry are being studied by Teissier co-workers.

Institute of Genetics, Utrecht, Netherlands. A new Institute of Genetics has been established at the State University of Utrecht, Stationsstraat 9. The Director is Professor Dr. C. L. Rümke. Dr. F. H. Sobels is in charge of the *Drosophila* work.

Nomenclature. E. Mayr, J. T. Patterson, M. Wheeler, and W. P. Spencer have requested the International Commission on Zoological Nomenclature not to accept the recent proposal by Roy A. Harrison (1952, Trans. Proc. Roy. Soc. New Zealand 79: 514-515) to place the name *Drosophila immigrans* Sturtevant (1921) in the synonymy of *D. brouni* Hutton (1901). The first of five reasons given in support of their request is that the original description of *D. brouni* is taxonomically worthless.

TEACHING NOTES

A new German laboratory manual. In Biologie in Versuchen (Ed., Stud.-Rat E. Thieme, Phywe A. G., Göttingen) there is a section by H. J. Becker entitled "Versuche zur Vererbungslehre" giving instructions for 50 *Drosophila* experiments to demonstrate the basic laws of heredity, especially intended for Biology classes in high schools.

A new Japanese laboratory manual. A new book of laboratory exercises in genetics of *Drosophila* (205 pages; pub., Baifûkan, Tokyo) has been published in Japanese under the joint authorship of twelve *Drosophila* workers in Japan. It is intended to meet the ever-increasing demand by teachers and students, from middle schools to colleges, in that country.

Kenneth Cooper urgently needs a stock of In(3LR)Hi, and would appreciate any information about this inversion.

Newton Freire-Maia of the University of Paraná (Brazil, see Directory), would like to receive reprints in all fields of Genetics, especially on population genetics and chromosomal aberrations.

F. Mainx of the University of Vienna, Austria (Institut f. allgemeine Biologie), would appreciate receiving cultivated stocks of *Aphiochaeta* species (Phoridae).

W. Zimmermann, Göttingen (see Directory), asks for stocks of *D. melanogaster* in which abnormal abdomen appears spontaneously more or less often. Information concerning such stocks will be appreciated with thanks. Please send reprints of genetics papers, especially population genetics.

Drosophila bibliographies. "Bibliography on the Genetics of *Drosophila*. II." by I. H. Herskowitz, containing titles from 1939 through 1950 and having a subject index for the titles in both this work and that (by H. J. Muller) extending through 1938, is at present in page proof and will probably cost 20/- (about \$2.80). Those interested in obtaining either this bibliography or the earlier one (of which copies are still available) may write to the Commonwealth Bureau of Animal Breeding and Genetics, Kings Buildings, West Mains Road, Edinburgh 9. Arrangements may be made whereby it can be obtained in this country without the trouble entailed by issuance of an international money order. Information about this can be obtained, when available, by writing to Herskowitz at 101 Science Hall, Indiana University, Bloomington, Indiana.

Early issues of DIS reproduced. Since many *Drosophila* workers, particularly of the younger generation, and workers in closely related fields do not own the earlier numbers of DIS, E. Novitski, with the permission of M. Demerec, started a project to reproduce some of those numbers. It was decided to reproduce only the items of permanent interest, that is, the research and technical notes; other sections, like stock lists and directories, were omitted. Information about new mutants was not included because it may be found in Bridges and Brehme. The notes from numbers 1-14 inclusive, have been retyped and mimeographed; the paging and format are the same as in the original. All these notes are to be bound in single copies of about 220 pages. It is anticipated that the binding will be somewhat more substantial than that of the current numbers. The notes from these fourteen numbers are indexed by contributor and subject. To help defray the cost of reproduction, binding, and mailing, a nominal charge of one dollar is to be made for each copy. Those interested in acquiring a copy may do so by writing to E. Novitski, Department of Zoology, University of Missouri, Columbia, Missouri.

We have been informed that copies of the book Svalöf 1886-1946. History and Present Problems (about 400 pages) are still available, and can be purchased from the Swedish Seed Association, Svalöf, for the reduced price of \$3 per copy. The regular price was \$6 per copy.

Irwin H. Herskowitz, Editor

D. = Drosophila; D.m. = Drosophila melanogaster

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Schubert, Gerhard (Prof. Dr.) Director. *Melanogaster*: radiation genetics,
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Boehmer, Herta. Technical Assistant, Stock Keeper.
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Slizynska, H. Ph.D. Salivaries.
Slizynski, B. M. Ph.D. Salivaries.
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Lamy, R. Pseudoobscura.
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Bastock, Margaret. Analysis of the mating behavior of D. melanogaster and the effect of certain mutants (particularly yellow) upon it.
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Demerec, V. R. Taxonomy and ecology of British Drosophila.

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Perje, Ann-Margret. Ph.Lic. Research Assistant. Salivary-chromosome
analysis; cytogenetics and mutations of *D. funebris*.

Rasmuson, B. Ph.Lic. Research Assistant. *Melanogaster*: ether sensitivity.

Rasmuson, Marianne. Ph.Lic. Research worker. *Melanogaster*: quantitative
inheritance.

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Benz, Georg Graduate student. Physiological genetics of lethals.

Bertschmann, May Graduate student. Influence of chemicals on development.

Bucher, Nelly Graduate student. Development of gonads.

Bull, Alice Louise Ph.D. Guest. Embryonic development.

Chen, Pei-Shen Ph.D. Assistant. Physiology and development.

Gloor, Hans Ph.D. Dozent. Developmental genetics.

Hadorn, Ernst Ph.D. Professor. Developmental genetics, lethals, influence of chemicals.

Loosli, Rolf Graduate student. Regulation in imaginal discs.

Oprecht, Eva Graduate student. Parasitic wasps of *Drosophila*.

Perron, Rolf Assistant. Development of *Drosophila* mites.

Rickenbacher, Josef M.D. Assistant. Mutants and development.

Schnitter, Markus Graduate student. Physiological genetics of lethals.

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Zwicky, Karl Assistant. Physiology.

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Fung, Sui-Tong Chan M.S. *Melanogaster*: physiological effects of sex genes, chromosome reorganization.

Gowen, John W. Ph.D. *Melanogaster*: crossing over, gene structure, and physiological action; heterosis.

Haverland, Loren H. Graduate student.

Hollander, W. F. Ph.D. Gene mutation.

Stadler, Janice M.S. *Melanogaster*: agents for mutations, heterosis.

Willermet, David A. M.S. Graduate student.

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Ives, P. T. Ph.D. Research Associate. Population genetics, radiation genetics, mutation, and gene action.

Levine, R. P. Ph.D. Instructor. *Melanogaster*, *pseudoobscura*: population genetics, crossing over.

Plough, H. H. Ph.D. Professor. Radiation genetics and gene action. (On leave to AEC in Washington, D.C. until July, 1953.)
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Glass, H. Bentley Ph.D. *Melanogaster*: population genetics of erupt and suppressor-erupt; gene action of suppressor-erupt; radiation and oxygen-tension effects; effects of mutagens on females.
Glassman, Edward M.S. Graduate student. *Melanogaster*: chemical identification of suppressor-erupt substance.
House, Verl L. Ph.D. *Melanogaster*: development of venation.
Plaine, Henry L. A.B. Graduate student and research assistant. *Melanogaster*: gene action of suppressor-erupt; tumor induction and formation; radiation and oxygen-tension effects.
Ritterhoff, Rebecca K. B.S. Research Assistant. *Melanogaster*: effects of mutagens on females.
Young, William J. M.A. Graduate student. *Melanogaster*: effects of X-rays supplemented with infrared.

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The University of Tennessee, Department of Zoology and Entomology

Carpenter, John M. Ph.D. Assistant Professor. Drosophila populations; biotic potential and environmental resistance; intra- and interspecific competition.
Townsend, J. Ives, Jr. Ph.D. Assistant Professor. Population genetics; marginal populations of willistoni and other species.

Lincoln, Nebraska

The University of Nebraska, Department of Zoology

Annan, Murvel E. M.S. Graduate student. Robusta: radiation.
Miller, Dwight D. Ph.D. Associate Professor. Affinis subgroup: morphological variation, interspecific crossing.
Weeks, Leo M.A. Graduate student. Melanica (melanica and paramelanica): morphological variation, intersubspecific crossing.
Yanders, Armon F. M.S. Graduate student. Robusta: radiation.

Logan, Utah

Utah State Agricultural College, Department of Zoology

Bingham, Marriner. B.S. Graduate student. Melanogaster: genetics.
Gardner, Eldon J. Ph.D. Professor. Melanogaster: genetics.
Gardner, Morris D. B.S. Graduate student. Melanogaster: genetics.
Mottishaw, Donald B.S. Graduate student. Melanogaster: genetics.

Los Angeles, California
University of California

- Ball, Francis M. B.S. Senior Laboratory Technician; curator of species stocks, Department of Botany. Pseudoobscura: mutants.
- Dagg, Martha B.A. Graduate student, Department of Zoology. Melanogaster: lethals in translocations.
- Epling, Carl Ph.D. Professor, Department of Botany. Pseudoobscura: population genetics.
- GoodSmith, W. M.A. Graduate student, Department of Zoology. Melanogaster: position effect and the brown locus.
- Harritt, Nancy B.A. Curator of melanogaster stocks, Department of Zoology. Melanogaster: lethals.
- Hinton, Taylor Ph.D. Associate Professor, Department of Zoology. Melanogaster: position effect, gene expression on chemically defined medium.
- Mattoni, Rudolf H. T. M.A. Research Assistant, Department of Botany. Graduate student, Department of Zoology. Pseudoobscura: population genetics.
- McCulloch, N. B., Jr. B.S. Laboratory Assistant, Department of Botany. Graduate student, Department of Zoology. Pseudoobscura: population genetics.
- Mitchell, Donald F. Ph.D. Research Fellow (Public Health), Department of Botany. Pseudoobscura: population genetics. (On leave with the United States Navy.)
- Qucal, Marion Ph.D. Research Associate, Department of Zoology. Melanogaster: mutants.
- Williams, Doris A.B. Research Assistant, Department of Zoology. Melanogaster: gene expression on chemically defined medium.

Madison 6, Wisconsin
University of Wisconsin, Department of Genetics

- Crow, James F. Ph.D. Associate Professor. Population genetics.
- Seto, Frank M.S. Graduate Assistant. Embryology.
- Smith, Daniel A.B. Graduate Assistant. DDT resistance.
- Stott, Gerald M.S. Graduate Assistant. Tumorous-head genetics.

Minneapolis 14, Minnesota
University of Minnesota, Department of Zoology

- Kroman, Ronald K. Graduate student. Melanogaster.
- Merrell, David J. Assistant Professor. Population genetics.
- Reed, Sheldon C. Professor. Population genetics.

New Haven, Connecticut
Albertus Magnus College, Department of Biology

- Cullen, Sister Mary Urban, O.P. Ph.D. Professor. Melanogaster: physiological genetics.

New Haven 11, Connecticut
Yale University, Osborn Zoological Laboratory

- Hillman, Ralph B.A. Graduate student. Developmental genetics.
- Hilse, Regina M. (Mrs.) B.A. Curator of stocks, technical assistant.
- Poulson, D. F. Ph.D. Associate Professor. Melanogaster: developmental genetics; mineral metabolism of Drosophilidae.
- Remington, Charles L. Ph.D. Assistant Professor. Speciation; population genetics of Lepidoptera.

Ross, Bertha G. B.A. Graduate student. Developmental genetics, histochemistry.

New London, Connecticut

*Connecticut College, Department of Zoology

Wheeler, Bernice M. Ph.D. Instructor. Gibberosa: physiological genetics; iodine metabolism of Diptera.

New Orleans 12, Louisiana

Louisiana State University, School of Medicine

Burdette, Walter J. Ph.D., M.D. Director research and teaching in Oncology; Associate Professor of Surgery. Tumors, mutation.

Forshag, Anna Marguerite B.S. Research Assistant.

Haddox, C. H. Ph.D. Research Associate. Mutation, gene action.

Hyde, Harriette B.S. Research Assistant.

Olivier, Henry A.B. Student Fellow.

Travis, Clare Lee A.B. Research Assistant.

Smith, George Ann M.A. Research Assistant.

New York 24, New York

American Museum of Natural History, Central Park West at 79th Street

Mayr, Ernst Ph.D. Population genetics.

New York 27, New York

Columbia University, Department of Zoology

Brnčić, Danko Research Fellow of the Guggenheim Foundation. (Permanent address: National University of Chile, Santiago, Chile.) Population genetics, origin of heterosis.

Cooper, D. Postgraduate student. Population genetics and ecology, the role of different species of yeast in diet of *pseudoobscura* and *persimilis*.

Dobzhansky, Th. Professor. *Pseudoobscura*, *persimilis*, *willistoni*, and other species: population genetics.

Dunn, L. C. Professor. *Melanogaster*: developmental genetics.

Levine, Louis Graduate student. *Pseudoobscura*: population genetics, heterosis.

Lewontin, Richard C. Postgraduate student. *Pseudoobscura*: population genetics, polymorphism.

Marien, D. Postgraduate student. Experimental studies on sexual isolation in *Drosophila*, population genetics.

Moore, John A. Professor. Population genetics, species competition.

Pavlovsky, O. A. Research Assistant.

Prout, Timothy. Graduate student. *Melanogaster*: population genetics, radiation genetics.

Rosenbaum, Joan Graduate student. *Pseudoobscura*: population genetics and ecology of *Drosophila*.

Spassky, Boris. Research Associate. *Pseudoobscura*, *willistoni*, and other species: population genetics, comparative genetics, mutation rates in different species.

Spassky, N. P. (Mrs.) Research Assistant. *Willistoni*, *prosaltans*: population genetics.

Vetukhov, M. A. Research Fellow. Population genetics and general genetics; heterosis and hybridization of local populations of *pseudoobscura*.

Norman, Oklahoma*University of Oklahoma, Department of Zoology

Blanc, Richard Ph.D. Assistant Professor. *Melanogaster*: developmental genetics.

Oak Ridge, TennesseeOak Ridge National Laboratory, Biology Division

Baker, William K. Ph.D. Radiation genetics, position effect.
Von Halle, Elizabeth S. B.A. Radiation genetics.

Pasadena 4, CaliforniaCalifornia Institute of Technology, Kerckhoff Laboratories of Biology

Beadle, G. W. Ph.D. Professor.
Hinton, C. W. M.A. Graduate student.
Johannsen, Kristin Research Assistant.
Judd, B. H. M.A. Graduate student.
Lewis, E. B. Ph.D. Associate Professor.
Mislove, Rhoda F. (Mrs.) Curator of *Drosophila* Stocks.
Morgan, L. V. (Mrs. T.H.) M.A. Research Associate.
Sturtevant, A. H. Ph.D. Professor.

Philadelphia, PennsylvaniaInstitute for Cancer Research and Lankenau Hospital Research Institute,
Fox Chase

Aronson, John F. A.B. Technician.
Bischoff, Norma Technician.
Hungerford, David A. A.B. Technician.
Kuhn, Jeanne M. (Mrs.) B.S. Technician.
Lang, Helga M. M.A. Research Assistant.
Levenbook, Leonidas. Ph.D. Research Associate.
Patterson, Elizabeth K. Ph.D. Associate Member.
Redfield, Helen (Mrs. Jack Schultz) Ph.D. Research Associate.
Rothman, Barry. Laboratory helper.
Rudkin, George T. Ph.D. Research Associate.
Schultz, Jack Ph.D. Senior Member, Head of Department.
Travaglini, Elizabeth C. M.A. Research Assistant.

Pittsburgh 13, PennsylvaniaUniversity of Pittsburgh, Department of Biological Sciences

Spiess, Eliot B. Ph.D. Assistant Professor. *Persimilis*: population genetics.

Princeton, New JerseyPrinceton University, Department of Biology

Lindsley, Dan L. Ph.D. N.R.C. Fellow.

Pullman, WashingtonState College of Washington, Department of Zoology

King, James B.S. Graduate student, Research Assistant.
Moree, Ray Ph.D. Associate Professor. Population genetics.
Peterson, Aldon B.S. Graduate student, Teaching Assistant.

Richmond, VirginiaMedical College of Virginia, Department of Biology

Hughes, Roscoe D. Ph.D. Professor of Biology. *Drosophila* cytogenetics.

Rochester, New YorkUniversity of Rochester, Biological Laboratories

Charles, Donald R. Ph.D. Professor of Biology. Radiation genetics, crossing over.

Cooper, Kenneth W. Ph.D. Professor of Biology. Cytogenetics.

Krivshenko, Jakov D.Sc. Research Associate. Cytogenetics, especially of *D. busckii*.

St. Louis, MissouriWashington University, Department of Zoology

Bennett, Jack C. A.B. Graduate student. Tripunctata: genetics.

Bennett, Katherine W. A.B. Graduate student. Robusta: cytogenetics.

Blight, William C. A.B. Graduate student. Americana: cytology and ecology.

Carson, Hampton L. Ph.D. Associate Professor. Robusta: cytogenetics.

Romano, Albert A.B. Graduate student. Americana: genetics and ecology.

Schuermann, Lois J. A.B. Research Assistant.

Stalker, Harrison D. Ph.D. Associate Professor. Cardini group: taxonomy and parthenogenesis.

Salt Lake City, UtahUniversity of Utah, Department of Genetics and Cytology

Farnsworth, Philo B.A. Graduate student. *Melanogaster*: reverse mutation.

Hennacy, Richard M.S. Graduate student. *Melanogaster*: analysis of the Notch mutation.

Lefevre, George, Jr. Ph.D. Assistant Professor. *Melanogaster*: radiation genetics.

Newby, W. W. Ph.D. Professor and Department Head. *Melanogaster*: developmental genetics, tumorous head.

Ratty, Frank J., Jr. Ph.D. Instructor. *Melanogaster*: duplications, position effect, distribution of lethals.

Schenectady, New York*Union College, Biology Department

Dale, Ernest E. Ph.D. Professor of Biology.

Fox, Howard Student.

Young, Frank Student.

Upton, Long Island, New YorkBrookhaven National Laboratory, Biology Department, 46 Bell Avenue

King, Robert C. Ph.D. *Melanogaster*: mutation studies with radiophosphorus and thermal neutrons; phosphorus metabolism.

Urbana, IllinoisUniversity of Illinois, Department of Zoology

Austin, Mildred Keller (Mrs.) Graduate student. Radiation genetics.

Baer, Adela J. (Mrs.) Student, curator of stocks, laboratory technician.

Bourgin, Rose Cherie (Mrs.) Radiation genetics.

Kurland, Aaron M.S. Graduate student. Biochemical genetics; Bar alleles.

Lichtwardt, Elizabeth Thomas (Mrs.) Graduate student. Salivary chromosomes.
Luce, Wilbur M. Professor. Bar alleles, effects of environmental agents,
radiation genetics, physiological genetics.

Wellesley, Massachusetts

Wellesley College, Department of Zoology and Physiology

Wilson, Louise Palmer Ph.D. Associate Professor. *Melanogaster*: physiology
of growth, emphasis on tumors.

West Lafayette, Indiana

Purdue University

Bell, A. E. Ph.D. Associate Professor. Poultry Department. *Melanogaster*:
population genetics.

Burdick, A. B. Ph.D. Assistant Professor, Department of Biological
Sciences. *Melanogaster*: polygenic inheritance.

Rifenburgh, S. A. Ph.D. Associate Professor, Department of Biological
Sciences. *Melanogaster*: ultraviolet radiation.

Wooster, Ohio

*College of Wooster, Laboratory of Biology

Spencer, W. P. Ph.D. Professor. *Drosophila* species; population genetics.

Abrahamson, Seymour. U.S.A., Bloomington, Indiana
Akita, Y. K. Japan, Tokyo
Alcobe, S. Spain, Barcelona
Alderson, T. Great Britain, Edinburgh, Scotland
Alexander, Mary L. U.S.A., Austin, Texas
Allen, Sally Lyman. U.S.A., Chicago, Illinois
Altenburg, Edgar. U.S.A., Houston, Texas
Altenburg, Luolin Sorey. U.S.A., Houston, Texas
Altorfer, Nelly. Belgium, Brussels
Anders, Georges. Switzerland, Zuerich
Anger, Renate. Germany, Hamburg-Eppendorf
Annan, Murvel E. U.S.A., Lincoln, Nebraska
Aronson, John F. U.S.A., Philadelphia, Pennsylvania
Auerbach, C. Great Britain, Edinburgh, Scotland
Austin, Mildred Keller (Mrs.) U.S.A., Urbana, Illinois

Baer, Adela J. (Mrs.) U.S.A., Urbana, Illinois
Bagnol, Jeanine. France, Paris
Baker, William K. U.S.A., Oak Ridge, Tennessee
Ball, Francis H. U.S.A., Los Angeles, California
Banach, Patricia A. U.S.A., Ames, Iowa
Barbour, E. L. U.S.A., Columbia, Missouri
Barigozzi, C. Italy, Milano
Barish, Natalie. U.S.A., Columbus, Ohio
Barros, R. Brazil, São Paulo
Basden, E. B. Great Britain, Edinburgh, Scotland
Bastock, Margaret. Great Britain, Oxford, England
Bateman, A. J. Great Britain, Bayfordbury, Hertford, England
Beadle, G. W. U.S.A., Pasadena, California
Becker, Hans-Joachim. Germany, Göttingen
Belitz, Hans-Joachim. Germany, Berlin-Buch
Bell, A. E. U.S.A., West Lafayette, Indiana
Bender, Michael A. U.S.A., Baltimore, Maryland
Bennett, Jack C. U.S.A., St. Louis, Missouri
Bennett, Katherine W. U.S.A., St. Louis, Missouri
Benz, Georg. Switzerland, Zürich
Beretta, M. Italy, Pavia
Bertschmann, May. Switzerland, Zuerich
Bevan, E. A. U.S.A., Hanover, New Hampshire
Bianchi, A. Italy, Pavia
Binder, Margarete. Germany, Berlin-Dahlem
Binder, Robert. U.S.A., Cold Spring Harbor, New York
Bingham, Marriner. U.S.A., Logan, Utah
Bird, Myrtle J. Great Britain, Chalfont St. Giles, Bucks, England
Bischoff, Norma. U.S.A., Philadelphia, Pennsylvania
Blanc, Richard. U.S.A., Norman, Oklahoma
Blight, William C. U.S.A., St. Louis, Missouri
Blount, Jerry Lee. U.S.A., Evanston, Illinois
Bochnig, Veronika. Germany, Berlin-Buch
Boehmer, Herta. Germany, Heidelberg
Bonnier, G. Sweden, Stockholm
Bösiger, E. France, Gif-sur-Yvette (Seine et Oise)
Bösiger, S. (Mrs.) France, Gif-sur-Yvette (Seine et Oise)
Bossi, A. A. Italy, Pavia
Bourgin, Rose Cherie (Mrs.) U.S.A., Urbana, Illinois
Brachet, Jean. Belgium, Brussels
Brandt, Hildtraut von Germany, Hamburg-Eppendorf
Brandt, J. Great Britain, Birmingham, England

Braver, Gerald. U.S.A., Columbia, Missouri
Breuer, M. Brazil, São Paulo
Brnčić, Danko. U.S.A., New York, New York, and Chile, Santiago
Brown, Spencer W. U.S.A., Berkeley, California
Browning, Iben. U.S.A., Houston, Texas
Brun, Gilbert. France, Gif-sur-Yvette (Seine et Oise)
Bruneau, L. H. U.S.A., Austin, Texas
Brunetto, A. Italy, Pavia
Buchanan, Jennie S. (Mrs. Paul) U.S.A., Cold Spring Harbor, New York
Bucher, Nelly. Switzerland, Zuerich
Buck, G. G. U.S.A., Columbia, Missouri
Burdette, Walter J. U.S.A., New Orleans, Louisiana
Burdick, A. B. U.S.A., West Lafayette, Indiana
Buri, Peter F. U.S.A., Chicago, Illinois
Burkholder, John H. U.S.A., Chicago, Illinois
Burla, Hans. Brazil, Rio de Janeiro
Burns, Jean. U.S.A., Eugene, Oregon
Burtin, Geneviève. France, Paris
Buzzati-Traverso, A. Italy, Pavia, and Berkeley, California

Cain, A. J. Great Britain, Oxford, England
Carpenter, John. Great Britain, London, England
Carpenter, John M. U.S.A., Knoxville, Tennessee
Carson, Gweneth L. U.S.A., Berkeley, California
Carson, Hampton L. U.S.A., St. Louis, Missouri
Castiglioni, M. C. Italy, Milano
Castro, Leonor E. Brazil, Rio de Janeiro
Catchaside, D. G. Australia, Adelaide
Cavalcanti, A. G. Lagden. Brazil, Rio de Janeiro
Chaptel, Françoise. France, Gif-sur-Yvette (Seine et Oise)
Charles, Donald R. U.S.A., Rochester, New York
Chen, Pei-Shen. Switzerland, Zuerich
Chevais, Simone (Mrs.) France, Paris
Chevassut, K. G. Great Britain, Edinburgh, Scotland
Chino, M. Japan, Shimizu-machi, Kamisuwa, Nagano-ken
Chovnick, Arthur. U.S.A., Columbus, Ohio
Cimber, Robert L. U.S.A., Cleveland, Ohio
Clancy, C. W. U.S.A., Eugene, Oregon
Clark, A. M. Australia, Melbourne
Clark, E. G. (Mrs.) Australia, Melbourne
Clarke, J. M. Great Britain, London, England
Clayton, Frances E. U.S.A., Austin, Texas
Clayton, G. A. Great Britain, Edinburgh, Scotland
Cleat, N. D. Great Britain, Glasgow, Scotland
Colvin, Julia. U.S.A., Bloomington, Indiana
Cooper, D. U.S.A., New York, New York
Cooper, Kenneth W. U.S.A., Rochester, New York
Cosillo, Gloria. U.S.A., Cold Spring Harbor, New York
Costello, D. P. U.S.A., Chapel Hill, North Carolina
Counce, S. J. Great Britain, Edinburgh, Scotland
Crow, James F. U.S.A., Madison, Wisconsin
Cullen, Sister Mary Urban. U.S.A., New Haven, Connecticut
Curran, Robert. U.S.A., Bar Harbor, Maine

Da Cunha, A. B. Brazil, São Paulo
Dagg, Martha. U.S.A., Los Angeles, California
Dale, Ernest E. U.S.A., Schenectady, New York
Darby, L. A. Great Britain, Bayfordbury, Hertford, England

Das, N. K. U.S.A., Cold Spring Harbor, New York
Dawson, Mary Ann. U.S.A., Bloomington, Indiana
D'Cruz, Rui. U.S.A., Berkeley, California
DeAubrey, Marietta (Mrs.) U.S.A., Bloomington, Indiana
DeBusk, A. G. U.S.A., Austin, Texas
Deiss, S. (Mrs.) France, Gif-sur-Yvette (Seine et Oise)
De Marinis, F. U.S.A., Cleveland, Ohio
Demerec, M. U.S.A., Cold Spring Harbor, New York
Demerec, V. R. Great Britain, Oxford, England
Dempster, Everett R. U.S.A., Berkeley, California
Dickins, Jean. Australia, Melbourne
Di Paolo, Joseph A. U.S.A., Chicago, Illinois
Di Pasquale, A. Italy, Milano
Dittrich, Wolfgang. Germany, Hamburg-Eppendorf
Dobzhansky, Th. U.S.A., New York, New York
Donada, Maria N. U.S.A., Austin, Texas
Döring, Heinrich. Germany, Göttingen
Dossin, M. L. France, Gif-sur-Yvette (Seine et Oise)
Douthitt, Rosalie. U.S.A., Bloomington, Indiana
Dresden, D. Netherlands, Utrecht
Dudgeon, Edna. U.S.A., Austin, Texas
Duhamel, C. France, Gif-sur-Yvette (Seine et Oise)
Dunn, L. C. U.S.A., New York, New York
Durrant, A. Great Britain, Birmingham, England

Ede, D. A. Great Britain, Edinburgh, Scotland
Edmondson, Margaret (Mrs.) U.S.A., Bloomington, Indiana
Eickhoff, Dora (Mrs.) Germany, Berlin-Buch
Elens, A. Belgium, Louvain
Elishewitz, H. U.S.A., Chicago, Illinois
El-Khishin, A. F. Great Britain, Edinburgh, Scotland
Ellis, J. F. U.S.A., Amherst, Massachusetts
El-Shatoury. Great Britain, Edinburgh, Scotland
Ephrussi, Boris. France, Paris
Ephrussi-Taylor, Harriett (Mrs.) France, Paris
Epling, Carl. U.S.A., Los Angeles, California

Fabergé, A. C. U.S.A., Columbia, Missouri
Fahmy, Onsy G. Great Britain, Chalfont St. Giles, Bucks, England
Falcão, Daisy. Brazil, Rio de Janeiro
Farnsworth, Philo. U.S.A., Salt Lake City, Utah
Fenton, B. J. U.S.A., Amherst, Massachusetts
Fernández Gianotti, Arturo A. Argentina, Buenos Aires
Fette, Hildegard. Germany, Göttingen
Fiala, Yvonne. Austria, Vienna
Fogel, Seymour. U.S.A., Brooklyn, New York
Forbes, E. C. Great Britain, Glasgow, Scotland
Forbes, Oliver C. U.S.A., Berkeley, California
Forshag, Marjorie. U.S.A., New Orleans, Louisiana
Fox, Allen S. U.S.A., Columbus, Ohio
Fox, Howard. U.S.A., Schenectady, New York
Föyn Björn. Norway, Oslo
Fraser, A. S. Australia, Sidney
Freire-Maia, Ademar. Brazil, Curitiba, Paraná
Freire-Maia, Newton. Brazil, Curitiba, Paraná
Frisch, Rose (Mrs.) U.S.A., Cambridge, Massachusetts
Frizzi, G. Italy, Pavia
Frota-Pessoa, O. Brazil, Rio de Janeiro

Frumento, L. Italy, Pavia
Frye, Sara (Mrs.) U.S.A., Bloomington, Indiana
Fujii, S. Japan, Kobe
Fujito, S. Japan, Osaka
Fung, Sui Tong. U.S.A., Ames, Iowa

Gans, Madeleine (Mrs.) France, Paris
Gardner, Eldon J. U.S.A., Logan, Utah
Gardner, Henry. U.S.A., Cold Spring Harbor, New York
Gardner, Morris D. U.S.A., Logan, Utah
Gasić, Gabriel. Chile, Santiago
Gersh, Eileen Sutton. U.S.A., Chicago, Illinois
Glass, H. Bentley. U.S.A., Baltimore, Maryland
Glassman, Edward. U.S.A., Baltimore, Maryland
Gloor, Hans. Great Britain, Glasgow, Scotland (Until July, 1953)
Goldschmidt, Elisabeth. Israel, Jerusalem
Goldschmidt, Richard B. U.S.A., Berkeley, California
Goldstein, Léonide. France, Gif-sur-Yvette (Seine et Oise)
Goldstein, Luce (Mrs.) France, Paris
Goodman, Fred. U.S.A., Brooklyn, New York
GoodSmith, W. U.S.A., Los Angeles, California
Gowen, John W. U.S.A., Ames, Iowa
Grasso, F. Italy, Pavia
Green, M. M. U.S.A., Davis, California
Griffen, A. B. U.S.A., Bar Harbor, Maine
Guillemain, Annie. France, Gif-sur-Yvette (Seine et Oise)
Gunson, M. M. Australia, Melbourne
Günther, Ina-Margit (Mrs.) Germany, Berlin-Buch
Günther, Klaus. Germany, Berlin-Dahlem

Haas, F. L. U.S.A., Austin, Texas
Haddox, C. H. U.S.A., New Orleans, Louisiana
Hadorn, Ernst. Switzerland, Zuerich
Haldane, J. B. S. Great Britain, London, England
Hannah, Aloha. U.S.A., Berkeley, California
Harada, S. Japan, Osaka
Harm, Helga. Germany, Berlin-Dahlem
Harm, Walter. Germany, Berlin-Dahlem
Harrison, B. J. Great Britain, Bayfordbury, Hertford, England
Harritt, Nancy. U.S.A., Los Angeles, California
Hartman, J. L. U.S.A., Holloman Air Force Base, New Mexico
Hartung, Ernest W. U.S.A., Kingston, Rhode Island
Haskins, Francis. U.S.A., Austin, Texas
Haverland, Loren H. U.S.A., Ames, Iowa
Heed, William. U.S.A., Austin, Texas
Henke, Karl. Germany, Göttingen
Hennacy, Richard. U.S.A., Salt Lake City, Utah
Herman, Doris. U.S.A., Kingston, Rhode Island
Hersh, A. H. U.S.A., Cleveland, Ohio
Herskowitz, Irwin H. U.S.A., Bloomington, Indiana
Hertweck, Heinrich. Germany, Berlin-Buch
Heuts, M. J. Belgium, Louvain
Hexter, William. U.S.A., Berkeley, California
Hildreth, Philip. U.S.A., Berkeley, California
Hill, Berton F. U.S.A., Chicago, Illinois
Hillman, Ralph. U.S.A., New Haven, Connecticut
Hilse, Regina M. (Mrs.) U.S.A., New Haven, Connecticut
Hinton, Claude W. U.S.A., Pasadena, California

Hinton, T. U.S.A., Los Angeles, California
Hipsch, Rita. Austria, Vienna
Hirumi, H. Japan, Misima
Hoch, Milton O. U.S.A., Cleveland, Ohio
Hochman, Benjamin. U.S.A., Berkeley, California
Hoessels, E. L. M. J. Netherlands, Utrecht
Höhne, Günter. Germany, Hamburg-Eppendorf
Hollander, W. F. U.S.A., Ames, Iowa
Hollingsworth, M. J. Great Britain, London, England
Hottinguer, Hélène. France, Paris
House, Verl L. U.S.A., Baltimore, Maryland
Hughes, Roscoe D. U.S.A., Richmond, Virginia
Hul, V. van de Netherlands, Utrecht
Hungerford, David A. U.S.A., Philadelphia, Pennsylvania
Hyde, Harriette. U.S.A., New Orleans, Louisiana

Imaizumi, T. Japan, Kyoto
Ives, P. T. U.S.A., Amherst, Massachusetts
Iyengar, Shanta V. U.S.A., Bloomington, Indiana

Jacquet, Nicolle. France, Paris
Jarvis, Floyd E., Jr. U.S.A., Blacksburg, Virginia
Johannasen, Kristin. U.S.A., Pasadena, California
Johns, Robert M. U.S.A., Chapel Hill, North Carolina
Jonsson, Ulla-Britt. Sweden, Stockholm
Jucci, C. Italy, Pavia
Judd, B. H. U.S.A., Pasadena, California

Kaji, S. Japan, Kyoto
Kaliss, Nathan. U.S.A., Bar Harbor, Maine
Kanehisa, Takeharu. Japan, Sapporo
Kaplan, William D. Great Britain, Edinburgh, Scotland
Karlik, Anni. Austria, Vienna
Kaufmann, B. P. U.S.A., Cold Spring Harbor, New York
Kawabe, M. Japan, Kobe
Kelly, T. U.S.A., Holloman Air Force Base, New Mexico
Kerridge, J. R. Great Britain, Harpenden, Herts, England
Kiil, Vilhelm. Norway, Oslo
Kikkawa, H. Japan, Osaka
Kimoto, Y. Japan, Kobe
King, James. U.S.A., Pullman, Washington
King, James C. U.S.A., Cold Spring Harbor, New York
King, Robert C. U.S.A., Upton, New York
Kitada, J. Japan, Sakai, Osaka
Kitazume, Y. Japan, Kyoto
Klein, Richard L. U.S.A., Bloomington, Indiana
Knight, G. E. Great Britain, Edinburgh, Scotland
Knutson, Herbert C. U.S.A., Kingston, Rhode Island
Komai, T. Japan, Misima
Köpf, Hildegard (Mrs.) Germany, Berlin-Buch
Koref, Susie. Chile, Santiago
Koske, Thea. Austria, Vienna
Koske, T. Great Britain, London, England
Kramer, Josephine (Mrs.) U.S.A., Bloomington, Indiana
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Kromm, Natalie. Germany, Berlin-Buch
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Kuhn, Jeanne M. (Mrs.) U.S.A., Philadelphia, Pennsylvania
Kunze, Elfriede. Austria, Vienna
Kurland, Aaron. U.S.A., Urbana, Illinois
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Kurokawa, H. Japan, Tokyo
Kutschera, Gertrude. Austria, Vienna

Lamke, W. U.S.A., Holloman Air Force Base, New Mexico
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Lamy, R. Great Britain, London, England
Lang, Helga M. (Mrs.) U.S.A., Philadelphia, Pennsylvania
Laskowski, Wolfgang. France, Paris
Lauprecht, Edwin. Germany, Göttingen
Lederman-Klein, Ada. Israel, Jerusalem
Lefevre, George, Jr. U.S.A., Salt Lake City, Utah
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Lestrangé, M. de France, Gif-sur-Yvette (Seine et Oise)
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Lewis, Herman W. U.S.A., Berkeley, California
Lewontin, Richard C. U.S.A., New York, New York
L'Héritier, Philippe. France, Gif-sur-Yvette (Seine et Oise)
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Lüers, Herbert. Germany, Berlin-Buch
Lüers, Thea (Mrs.) Germany, Berlin-Buch
Lundblad, Anita. Sweden, Stockholm
Lüning, K. G. Sweden, Stockholm

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McGunnigle, E. C. U.S.A., Cold Spring Harbor, New York
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Magni, G. Italy, Pavia
Mainx, Felix. Austria, Vienna
Makino, Sajiro. Japan, Sapporo
Malogolowkin, Chana. Brazil, Rio de Janeiro
Manunta, C. Italy, Pavia
Margolin, Jean (Mrs.) U.S.A., Bloomington, Indiana
Marien, D. U.S.A., New York, New York
Masui, K. Japan, Anjo
Mather, K. Great Britain, Birmingham, England
Mather W. B. Australia, Brisbane
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Maynard Smith, J. Great Britain, London, England
Mayr, Ernst. U.S.A., New York, New York
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Mickey, George H. U.S.A., Evanston, Illinois
Mikolajczyk, Maria. Germany, Berlin-Dahlem
Milani, R. Italy, Pavia
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Nef, Walter. Switzerland, Bern
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Oftedal, Per. Great Britain, Edinburgh, Scotland
Ogaki, M. Japan, Osaka
Ogawa, K. Japan, Osaka
Ohba, S. Japan, Tokyo
Ohnishi, E. Japan, Tokyo
Ojima, Y. Japan, Kyoto
Okada, T. Japan, Tokyo
Oksengorn, J. (Mrs.) France, Gif-sur-Yvette (Seine et Oise)
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